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ABSTRACT

This document contains the tables that are referred to but not included in the research monograph, "Improvement of Secondary Education Through Research: Five Longitudinal Case Studies." The monograph reports on two middle schools, one junior high school, and two senior high schools that were involved in the study project, which included development and research activities conducted over a four-year period, 1977-81. It is noted that the goal of each school's development activities was to start or refine administration-organization arrangements and improvement strategies. The research activities, it is pointed out, had four main objectives, all related to development of the school's improvement capability. Chapters 3 through 7 of the research monograph give the research results, and, in each chapter, summary information is presented. The tables on which the summary information is based appear in this publication. This document contains 133 tables. The first numeral of each table title refers to the chapter for which the information in the table is relevant. (JMK)

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Program Report 83-8

Supplementary Tabular Information to Accompany the Research Monograph *Improvement of Secondary Education Through Research: Five Longitudinal Case Studies*

by Herbert J. Klausmeier, Ronald C. Serlin, and Monica C. Zindler

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Wisconsin Center for Education Research
an institute for the study of diversity in schooling

Program Report 83-8

SUPPLEMENTARY TABULAR INFORMATION TO ACCOMPANY THE RESEARCH MONOGRAPH, IMPROVEMENT OF SECONDARY EDUCATION THROUGH RESEARCH: FIVE LONGITUDINAL CASE STUDIES

by

Herbert J. Klausmeier, Ronald C. Serlin, and Monica C. Zindler

Report from the Program on
Student Diversity and School Processes

Wisconsin Center for Education Research
The University of Wisconsin
Madison, Wisconsin

November 1982

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Foreword

This paper contains the tables that are referred to but are not included in the research monograph, Improvement of Secondary Education Through Research: Five Longitudinal Case Studies. Chapters 3 through 7 of the monograph give the results of the research, one chapter for each of five schools. In each chapter, summary information is presented in tables. The tables on which the summary information is based appear in this publication. The first numeral of each table title refers to the chapter for which the information in the table is relevant. Including the tables in this publication rather than in the monograph improves its readability and permits it to be sold at a lower cost.

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Table 3.1. Mean Mental Ability and Mean Educational Achievement for Four Successive Grade 7 Groups: Steuben Middle School

	Word Knowledge						Reading						Reading Total					
	Mental Ability			Achievement			Mental Ability			Achievement			Mental Ability			Achievement		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
1977-78																		
Total	227	42.83	15.48	227	24.33	9.84	226	42.94	15.44	226	20.12	8.86	226	42.94	15.44	226	44.54	17.86
Male	117	42.83	15.99	117	24.80	9.81	116	43.03	15.90	116	20.28	8.97	116	43.03	15.90	116	45.23	17.94
Female	110	42.84	16.00	110	23.84	9.88	110	42.84	15.00	110	19.96	8.79	110	42.84	15.00	110	43.80	17.84
1978-79																		
Total	324	39.74	14.84	324	21.26	8.91	327	39.69	14.87	327	16.94	7.99	324	39.74	14.84	324	38.23	16.14
Male	142	39.54	15.85	142	22.15	9.48	145	39.44	15.92	145	17.61	8.71	142	39.54	15.85	142	39.85	17.55
Female	182	39.90	14.03	182	20.57	8.39	182	39.90	14.03	182	16.40	7.34	182	39.90	14.03	182	36.96	14.87
1979-80																		
Total	291	40.69	13.76	291	22.93	8.85	290	40.73	13.76	290	18.84	8.49	290	40.73	13.76	290	41.84	16.58
Male	139	39.77	13.74	139	22.72	8.57	138	39.86	13.75	138	18.06	8.29	138	39.86	13.75	138	40.90	16.07
Female	152	41.53	13.77	152	23.13	9.12	152	41.53	13.77	152	19.56	8.63	152	41.53	13.77	152	42.69	17.04
1980-81																		
Total	307	43.70	13.53	307	24.38	8.40	307	43.70	13.53	307	20.49	8.11	307	43.69	13.53	307	44.87	15.61
Male	143	42.31	12.86	143	23.94	7.93	143	42.31	12.86	143	19.83	7.34	143	42.31	12.86	143	43.76	14.27
Female	164	44.91	14.01	164	24.77	8.79	164	44.91	14.01	164	21.07	8.70	164	44.91	14.01	164	45.84	16.67

Table 3.1. (Continued):

	Language						Spelling						Math Computation					
	Mental Ability			Achievement			Mental Ability			Achievement			Mental Ability			Achievement		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
1977-78																		
Total	224	42.84	15.55	224	39.16	15.94	222	42.82	15.46	222	26.46	6.97	223	42.93	15.51	223	18.44	6.56
Male	117	42.83	15.99	117	37.49	16.04	114	43.12	16.03	114	26.18	7.67	114	43.12	16.03	114	18.27	6.64
Female	107	42.86	15.12	107	40.99	15.71	108	42.50	14.91	108	26.76	6.17	109	42.72	15.02	109	18.62	6.51
1978-79																		
Total	325	39.76	14.90	325	39.68	15.69	322	39.71	15.01	322	26.83	7.24	322	39.60	14.98	322	20.12	6.72
Male	144	39.43	16.03	144	38.82	15.56	144	39.28	16.12	144	26.56	7.27	143	39.11	16.09	143	19.83	7.12
Female	181	40.02	13.98	181	40.37	15.79	178	40.05	14.09	178	27.05	7.22	179	39.99	14.07	179	20.35	6.40
1979-80																		
Total	291	40.69	13.76	291	41.34	15.17	288	40.82	13.77	288	26.53	7.21	290	40.68	13.83	290	22.83	6.32
Male	139	39.77	13.74	139	39.32	14.00	136	40.02	13.78	136	24.93	6.90	138	39.79	13.81	138	22.66	6.36
Female	152	41.53	13.77	152	43.18	15.98	152	41.53	13.77	152	27.97	7.20	152	41.48	13.84	152	22.99	6.31
1980-81																		
Total	306	43.65	13.52	306	46.85	15.24	303	43.66	13.59	303	28.19	6.97	305	43.71	13.56	305	23.98	6.50
Male	143	42.31	12.86	143	43.69	13.90	141	42.30	12.93	141	27.03	6.75	142	42.35	12.90	142	22.83	6.20
Female	163	44.82	14.01	163	49.63	15.86	162	44.85	14.08	162	29.20	7.02	163	44.90	14.05	163	24.98	6.61

Table 3.1. (Continued):

	Math Concepts						Math Problem Solving						Math Total					
	Mental Ability			Achievement			Mental Ability			Achievement			Mental Ability			Achievement		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
1977-78																		
Total	222	42.95	15.54	222	17.94	6.77	219	43.16	15.54	219	15.41	6.44	219	43.16	15.54	219	52.00	18.24
Male	114	43.12	16.03	114	17.94	7.53	111	43.55	16.02	111	15.83	6.92	111	43.55	16.02	111	52.39	19.50
Female	108	42.77	15.08	108	17.94	5.90	108	42.77	15.08	108	14.97	5.90	108	42.77	15.08	108	51.59	16.93
1978-79																		
Total	320	39.74	14.92	320	18.15	7.19	323	39.66	15.00	323	14.90	6.26	320	39.74	14.92	320	53.26	18.49
Male	142	39.23	16.09	142	18.96	7.20	144	39.25	16.12	144	15.69	6.57	142	39.23	16.07	142	54.61	19.07
Female	178	40.15	13.96	178	17.50	7.13	179	39.99	14.07	179	14.26	5.94	178	40.15	13.96	178	52.19	18.00
1979-80																		
Total	289	40.66	13.85	289	20.51	6.54	289	40.69	13.85	289	15.88	5.95	288	40.67	13.87	288	59.25	16.85
Male	137	39.74	13.85	137	20.39	6.66	137	39.81	13.86	137	15.77	5.90	136	39.76	13.90	136	58.90	16.96
Female	152	41.48	13.84	152	20.61	6.45	152	41.48	13.84	152	15.97	6.01	152	41.48	13.84	152	59.57	16.79
1980-81																		
Total	303	43.78	13.57	303	20.75	6.33	303	43.70	13.60	303	16.91	5.75	302	43.76	13.59	302	64.85	41.44
Male	141	42.35	12.94	141	19.89	6.22	140	42.30	12.97	140	16.30	5.53	140	42.30	12.97	140	59.01	15.89
Female	162	44.01	14.02	162	21.49	6.35	163	44.90	14.05	163	17.43	5.89	162	44.01	14.02	162	69.89	54.20

Table 3.2. Mean Mental Ability and Mean Educational Achievement for Four Successive Grade 8 Groups: Steuben Middle School

	Word Knowledge						Reading						Reading Total					
	Mental Ability			Achievement			Mental Ability			Achievement			Mental Ability			Achievement		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
1977-78																		
Total	230	42.31	15.11	230	26.73	9.40	229	42.29	15.14	229	22.63	9.43	229	42.29	15.14	229	49.34	17.93
Male	104	43.88	16.01	104	27.96	10.37	103	43.86	16.08	103	24.01	10.08	103	43.86	16.08	103	51.94	19.64
Female	126	41.01	14.26	126	25.71	8.43	126	41.01	14.26	126	21.50	8.75	126	41.01	14.26	126	47.21	16.16
1978-79																		
Total	237	43.64	14.97	237	28.45	9.63	237	43.64	14.97	237	23.21	9.05	237	43.64	14.97	237	51.65	17.88
Male	120	43.26	15.67	120	28.83	9.85	120	43.26	15.67	120	23.21	9.21	120	43.26	15.67	120	52.04	18.18
Female	117	44.03	14.28	117	28.06	9.43	117	44.03	14.28	117	23.21	8.92	117	44.03	14.28	117	51.27	17.64
1979-80																		
Total	272	40.31	15.08	272	25.84	9.71	272	40.31	15.08	272	21.93	9.10	272	40.31	15.08	272	47.77	17.95
Male	121	40.10	16.47	121	26.70	10.03	121	40.10	16.47	121	22.27	9.40	121	40.10	16.47	121	48.98	18.47
Female	151	40.47	13.91	151	25.15	9.42	151	40.47	13.91	151	21.66	8.87	151	40.47	13.91	151	46.81	17.52
1980-81																		
Total	225	41.64	13.83	225	29.33	9.88	227	41.58	13.90	227	22.90	8.70	225	41.64	13.83	225	52.20	17.37
Male	101	41.43	13.97	101	29.85	9.73	102	41.54	13.95	102	22.80	9.02	101	41.43	13.97	101	52.62	17.60
Female	124	41.81	13.77	124	28.90	10.02	125	41.61	13.91	125	22.98	8.46	124	41.81	13.77	124	51.86	17.24

Table 3.2. (Continued):

	Language						Spelling						Math Computation					
	Mental Ability			Achievement			Mental Ability			Achievement			Mental Ability			Achievement		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
1977-78																		
Total	228	42.14	15.25	228	44.87	14.88	232	41.99	15.28	232	27.66	7.57	227	42.11	15.29	227	21.35	7.55
Male	103	43.63	16.30	103	42.91	15.57	107	42.98	16.43	107	25.98	7.65	104	42.88	16.65	104	21.44	8.21
Female	125	40.92	14.28	125	46.49	14.14	125	41.14	14.23	125	29.10	7.23	123	41.45	14.07	123	21.27	6.97
1978-79																		
Total	239	43.51	15.00	239	46.65	16.15	239	43.56	15.05	239	29.63	6.55	236	43.53	15.01	236	23.06	7.06
Male	122	43.01	15.70	122	44.48	16.50	121	42.98	15.80	121	28.41	6.71	117	42.79	15.73	117	22.85	7.31
Female	117	44.03	14.28	117	48.91	15.51	118	44.14	14.28	118	30.88	6.16	119	44.27	14.28	119	23.26	6.83
1979-80																		
Total	267	40.54	15.07	267	45.73	16.52	267	40.60	14.98	267	29.43	7.06	266	40.56	14.99	266	23.94	7.35
Male	121	40.10	16.47	121	44.24	16.64	118	40.43	16.41	118	28.36	7.65	116	40.23	16.47	116	23.83	7.50
Female	146	40.90	13.86	146	46.96	16.38	149	40.72	13.80	149	30.28	6.46	150	40.81	13.79	150	24.02	7.25
1980-81																		
Total	226	41.43	13.93	226	47.73	14.77	223	41.69	13.74	223	30.52	6.93	223	41.69	13.74	223	25.63	6.51
Male	102	41.54	13.95	102	46.82	14.07	101	41.60	13.65	101	29.92	6.31	101	41.60	13.65	101	26.22	6.53
Female	124	41.34	13.96	124	48.48	15.34	122	41.76	13.88	122	31.01	7.39	122	41.76	13.88	122	25.15	6.48

Table 3.2. (Continued):

	Math Concepts						Math Problem Solving						Math Total					
	Mental Ability			Achievement			Mental Ability			Achievement			Mental Ability			Achievement		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
1977-78																		
Total	229	42.01	15.33	229	18.07	7.02	229	42.00	15.33	229	20.88	7.63	222	42.31	15.31	222	60.74	20.73
Male	105	42.90	16.57	105	18.67	7.61	103	43.20	16.47	103	20.94	8.42	101	43.18	16.64	101	61.46	22.87
Female	124	41.26	14.23	124	17.56	6.47	126	41.02	14.33	126	20.83	6.94	121	41.59	14.14	121	60.15	18.83
1978-79																		
Total	236	43.53	15.01	236	18.41	6.72	235	43.55	15.04	235	22.53	7.55	235	43.55	15.04	235	64.06	20.14
Male	117	42.79	15.73	117	18.56	6.68	116	42.81	15.80	116	22.42	8.00	116	42.81	15.80	116	63.96	20.83
Female	119	44.27	14.28	119	18.25	6.78	119	44.27	14.28	119	22.64	7.12	119	44.27	14.28	119	64.15	19.52
1979-80																		
Total	267	40.58	14.95	267	18.03	6.98	265	40.58	15.02	265	21.91	7.38	264	40.64	15.01	264	64.08	20.16
Male	118	40.15	16.36	118	18.52	7.45	116	40.23	16.47	116	21.86	7.80	116	40.23	16.47	116	64.26	21.52
Female	149	40.92	13.78	149	17.64	6.57	149	40.85	13.83	149	21.95	7.06	148	40.96	13.82	148	63.93	19.10
1980-81																		
Total	223	41.69	13.74	223	19.29	6.34	223	41.69	13.74	223	23.14	6.71	223	41.69	13.74	223	68.07	17.89
Male	101	41.60	13.65	101	19.85	6.44	101	41.60	13.65	101	23.65	6.90	101	41.60	13.65	101	69.72	18.13
Female	122	41.76	13.88	122	18.83	6.24	122	41.76	13.88	122	22.72	6.56	122	41.76	13.88	122	66.70	17.65

Table 3.3. Adjusted Means in Educational Achievement for Four Successive Grade 7 Groups with Mental Ability Scores: Steuben Middle School

	Word Knowledge		Reading		Reading Total		Language	
	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$
1977-78								
Total	227	23.79	226	19.60	226	43.44	224	38.21
Male	117	24.26	116	19.71	116	44.05	117	36.55
Female	110	23.29	110	19.48	110	42.79	107	40.03
1978-79								
Total	324	22.14	327	17.74	324	39.92	325	41.17
Male	142	23.13	145	18.52	142	41.72	144	40.56
Female	182	21.37	182	17.12	182	38.51	181	41.65
1979-80								
Total	291	23.38	290	19.22	290	42.66	291	42.09
Male	139	23.59	138	18.79	138	42.48	139	40.79
Female	152	23.19	152	19.61	152	42.82	152	43.27
1980-81								
Total	307	23.44	307	19.66	307	43.11	306	45.27
Male	143	23.63	143	19.56	143	43.22	143	43.16
Female	164	23.27	164	19.74	164	43.03	163	47.12

Table 3.3. (Continued):

	Spelling		Math Computation		Math Concepts		Math Problem Solving		Math Total	
	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$
1977-78										
Total	222	26.17	223	18.09	222	17.55	219	14.98	219	50.75
Male	114	25.82	114	17.86	114	17.50	111	15.30	111	50.82
Female	108	26.55	109	18.33	108	17.61	108	14.66	108	50.69
1978-79										
Total	322	27.31	322	20.67	320	18.74	323	15.47	320	54.95
Male	144	27.15	143	20.51	142	19.71	144	16.30	142	56.73
Female	178	27.45	179	20.80	178	17.96	179	14.73	178	53.53
1979-80										
Total	288	26.74	290	23.09	289	20.81	289	16.16	288	60.14
Male	136	25.33	138	23.16	137	20.97	137	16.30	136	60.56
Female	152	28.00	152	23.03	152	20.67	152	16.03	152	59.77
1980-81										
Total	303	27.69	305	23.41	303	20.11	303	16.41	302	60.06
Male	141	26.87	142	22.63	141	19.69	140	16.12	140	58.51
Female	162	28.40	163	24.09	162	20.48	163	16.66	162	61.41

Table 3.4. Tests of Significance (ANCOVA) of Differences in Educational Achievement for Four Successive Grade 7 Groups with Mental Ability Scores: Steuben Middle School

Source	Covariate	Year(Y)	Sex(S)	Y X S	Residual	Total
Word Knowledge						
Degrees of Freedom	1	3	1	3	1140	1148
Mean Square	50109.64	128.58	213.52	32.77	36.27	81.65
F	1381.57	3.55	5.89	.90		
P	<.001	.014	.015	.439		
Reading						
Degrees of Freedom	1	3	1	3	1141	1149
Mean Square	39421.84	221.66	7.09	67.73	34.69	71.17
F	1136.54	6.39	.20	1.95		
P	<.001	<.001	.651	.119		
Reading Total						
Degrees of Freedom	1	3	1	3	1138	1146
Mean Square	177729.69	674.33	324.61	189.42	115.00	277.93
F	1545.48	5.86	2.83	1.65		
P	<.001	.001	.093	.177		
Language						
Degrees of Freedom	1	3	1	3	1137	1145
Mean Square	146395.78	2102.80	2113.47	122.02	108.12	248.77
F	1354.04	19.45	19.55	1.13		
P	<.001	<.001	<.001	.336		
Spelling						
Degrees of Freedom	1	3	1	3	1126	1134
Mean Square	14669.57	109.98	474.89	78.66	36.78	50.89
F	398.82	2.99	12.91	2.14		
P	<.001	.030	<.001	.094		

Table 3.4. (Continued):

Source	Covariate	Year(Y)	Sex(S)	Y X S	Residual	Total
Math Computation						
Degrees of Freedom	1	3	1	3	1131	1139
Mean Square	17582.20	1532.79	74.13	33.91	26.97	47.02
F	652.00	56.84	2.75	1.26		
P	<.001	<.001	.098	.288		
Math Concepts						
Degrees of Freedom	1	3	1	3	1125	1133
Mean Square	21394.32	526.64	22.72	87.63	26.01	46.69
F	822.57	20.25	.87	3.37		
P	<.001	<.001	.35	.018		
Math Problem Solving						
Degrees of Freedom	1	3	1	3	1125	1133
Mean Square	18784.43	102.69	69.81	63.57	20.03	37.40
F	937.70	5.13	3.49	3.17		
P	<.001	.002	.024	.024		
Math Total						
Degrees of Freedom	1	3	1	3	1120	1128
Mean Square	170057.72	5043.04	25.68	482.57	154.81	323.03
F	1098.48	32.58	.166	3.12		
P	<.001	<.001	.684	.025		

Table 3.5. Adjusted Means in Educational Achievement for Four Successive Grade 8 Groups with Mental Ability Scores: Steuben Middle School.

	Word Knowledge		Reading		Reading Total		Language	
	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$
1977-78								
Total	230	26.53	229	22.45	229	48.98	228	44.66
Male	104	26.99	103	23.13	103	50.10	103	41.53
Female	126	26.15	126	21.90	126	48.06	125	47.23
1978-79								
Total	237	27.60	237	22.42	237	50.03	239	45.37
Male	120	28.17	120	22.60	120	50.77	122	43.59
Female	117	27.02	117	22.25	117	49.27	117	47.22
1979-80								
Total	272	27.63	272	22.64	272	48.28	267	46.77
Male	121	27.59	121	23.08	121	50.68	121	45.63
Female	151	25.85	151	22.30	151	48.16	146	47.72
1980-81								
Total	225	29.46	227	23.04	225	52.46	226	48.08
Male	101	30.09	102	22.96	101	53.08	102	47.08
Female	124	28.95	125	23.11	124	51.95	124	48.89

Table 3.5. (Continued):

	Spelling		Math Computation		Math Concepts		Math Problem Solving		Math Total	
	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$
1977-78										
Total	232	27.64	227	21.29	229	20.85	229	18.03	222	60.45
Male	107	25.74	104	21.13	103	20.50	105	18.35	101	60.30
Female	125	29.28	123	21.43	126	21.15	124	17.77	121	60.57
1978-79										
Total	239	29.25	236	22.53	235	21.97	236	17.89	235	62.53
Male	121	28.16	117	22.57	116	22.11	117	18.28	116	63.16
Female	118	30.37	119	22.50	119	21.82	119	17.49	119	61.91
1979-80										
Total	267	29.74	266	24.38	265	22.38	267	18.46	264	65.43
Male	118	28.71	116	24.38	116	22.45	118	19.08	116	66.02
Female	149	30.55	150	24.38	149	22.32	149	17.96	148	64.97
1980-81										
Total	223	30.57	223	25.71	223	23.22	223	19.36	223	68.38
Male	101	29.99	101	26.32	101	23.76	101	19.95	101	70.12
Female	122	31.04	122	25.20	122	22.78	122	18.88	122	66.94

Table 3.6. Tests of Significance (ANCOVA) of Differences in Educational Achievement for Four Successive Grade 8 Groups with Mental Ability Scores: Steuben Middle School

Source	Covariate	Year(Y)	Sex(S)	Y X S	Residual	Total
Word Knowledge						
Degrees of Freedom	1	3	1	3	955	963
Mean Square	50423.46	422.312	352.59	8.91	40.41	94.92
F	1247.81	10.45	8.73	.22		
P	<.001	<.001	.003	.882		
Reading						
Degrees of Freedom	1	3	1	3	958	964
Mean Square	42162.95	16.79	72.27	19.81	38.29	38.29
F	1101.25	.44	1.89	.52		
P	<.001	.725	.170	.670		
Reading Total						
Degrees of Freedom	1	3	1	3	954	962
Mean Square	185205.24	549.84	767.04	22.78	122.35	318.87
F	1513.78	4.49	6.27	.19		
P	<.001	.004	.012	.906		
Language						
Degrees of Freedom	1	3	1	3	951	959
Mean Square	128872.87	554.30	2594.61	183.68	107.85	245.06
F	1194.92	5.14	24.06	1.70		
P	<.001	.002	<.001	.165		
Spelling						
Degrees of Freedom	1	3	1	3	952	960
Mean Square	11206.74	365.09	1108.46	61.47	36.69	50.36
F	305.48	9.52	30.22	1.68		
P	<.001	<.001	<.001	.171		

Table 3.6. (Continued):

Source	Covariates	Year(Y)	Sex(S)	Y X S	Residual	Total
Math Computation						
Degrees of Freedom	1	3	1	3	943	951
Mean Square	21812.55	887.53	11.69	21.45	28.01	53.07
F	778.69	31.68	.42	.77		
P	<.001	<.001	.518	.513		
Math Concepts						
Degrees of Freedom	1	3	1	3	943	951
Mean Square	25091.83	232.78	8.48	25.27	27.40	54.27
F	915.92	8.50	.31	.92		
P	<.001	<.001	.578	.429		
Math Problem Solving						
Degrees of Freedom	1	3	1	3	946	954
Mean Square	21382.62	104.93	187.47	3.74	23.42	46.08
F	912.97	4.48	8.00	.16		
P	<.001	.004	.005	.923		
Math Total						
Degrees of Freedom	1	3	1	3	935	943
Mean Square	201651.02	2779.88	395.21	111.90	117.06	396.40
F	1138.88	15.70	2.23	.63		
P	<.001	<.001	.136	.594		

Table 3.7. Mean Educational Achievement for Four Successive Grade 7 Groups without Mental Ability Scores: Steuben Middle School

	Word Knowledge			Reading			Reading Total			Language			Spelling		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
1977-78 Total	99	20.34	8.97	97	16.81	8.29	97	37.33	16.23	90	34.90	14.63	88	25.31	7.25
Male	53	19.83	8.93	51	16.04	7.82	51	36.18	15.45	44	31.93	12.92	47	22.94	5.67
Female	46	20.93	9.07	46	17.67	8.79	46	38.61	17.13	46	37.74	15.71	41	28.02	7.95
1978-79 Total	53	21.87	8.68	54	17.15	7.60	53	39.25	15.41	53	40.43	15.57	52	25.65	7.74
Male	29	22.24	8.16	30	17.43	7.74	29	40.10	15.17	29	39.66	14.65	29	24.59	6.97
Female	24	21.42	9.42	24	16.79	7.56	24	38.21	15.96	24	41.38	16.89	23	27.00	8.58
1979-80 Total	60	21.15	10.52	59	18.71	8.55	59	40.05	18.21	59	39.54	15.72	59	26.14	7.78
Male	38	21.05	10.15	37	17.86	7.84	37	39.22	16.97	37	37.78	12.47	36	24.69	6.12
Female	22	21.32	11.37	22	20.14	9.65	22	41.45	20.48	22	42.50	20.05	23	28.39	9.56
1980-81 Total	67	22.27	8.56	67	18.72	7.07	67	40.99	14.83	67	41.73	15.00	64	27.58	6.15
Male	37	23.62	8.65	37	18.84	7.51	37	42.46	15.31	37	40.92	15.78	35	26.89	6.29
Female	30	20.60	8.29	30	18.57	6.60	30	39.17	14.24	30	42.73	15.17	29	28.41	5.98

	Math Computation			Math Concepts			Math Problem Solving			Math Total		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
1977-78 Total	86	17.10	6.57	86	16.21	6.37	85	14.16	5.65	84	47.81	17.19
Male	45	16.27	6.37	46	14.91	6.33	45	13.73	4.86	44	45.50	15.90
Female	41	18.02	6.75	40	17.70	6.17	40	14.65	6.46	40	50.35	18.37
1978-79 Total	55	18.55	6.64	55	18.00	6.32	55	14.42	5.40	55	50.96	16.60
Male	31	18.90	6.31	31	18.45	6.07	31	15.55	4.90	31	52.90	15.46
Female	24	18.08	7.16	24	17.42	6.72	24	12.96	5.76	24	48.46	17.99
1979-80 Total	60	20.67	6.23	60	19.35	7.15	60	15.30	6.13	60	55.32	17.60
Male	37	20.70	6.59	37	18.86	7.07	37	15.59	6.16	37	55.16	17.77
Female	23	20.61	5.74	23	20.13	7.38	23	14.83	6.21	23	55.57	17.70
1980-81 Total	64	22.36	6.30	64	18.69	6.80	64	15.52	5.40	64	56.56	16.81
Male	35	22.40	6.36	35	18.26	7.37	35	16.00	5.91	35	56.66	18.36
Female	29	22.31	6.34	29	19.21	6.12	29	14.93	4.75	29	56.45	15.05

Table 3.8. Tests of Significance (ANOVA) of Differences in Educational Achievement for Four Successive Grade 7 Groups without Mental Ability Scores: Steuben Middle School

Source	Year(Y)	Sex(S)	Y X S	Residual	Total
Word Knowledge					
Degrees of Freedom	3	1	3	271	278
Mean Square	57.00	13.17	59.35	84.75	83.92
F	.67	.16	.70		
P	.570	.694	.553		
Reading					
Degrees of Freedom	3	1	3	269	276
Mean Square	77.46	49.26	31.09	63.39	63.10
F	1.22	.78	.49		
P	.30	.379	.689		
Reading Total					
Degrees of Freedom	3	1	3	268	275
Mean Square	198.92	1.56	145.81	264.66	261.69
F	.75	.01	.55		
P	.522	.939	.648		
Language					
Degrees of Freedom	3	1	3	261	268
Mean Square	767.49	934.44	74.75	228.66	234.91
F	3.36	4.09	.33		
P	.019	.044	.806		
Spelling					
Degrees of Freedom	3	1	3	255	262
Mean Square	70.99	738.82	43.89	49.62	52.40
F	1.43	14.89	.89		
P	.234	<.001	.450		

Table 3.8. (Continued):

Source	Year(Y)	Sex(S)	Y X S	Residual	Total
Math Computation					
Degrees of Freedom	3	1	3	257	264
Mean Square	384.57	8.76	22.29	41.91	45.43
F	9.18	.21	.53		
P	<.001	.648	.661		
Math Concepts					
Degrees of Freedom	3	1	3	257	264
Mean Square	143.59	95.19	40.83	44.05	45.26
F	3.26	2.16	.93		
P	.022	.143	.428		
Math Problem Solving					
Degrees of Freedom	3	1	3	256	263
Mean Square	28.85	29.20	35.28	31.96	31.96
F	.90	.91	1.10		
P	.440	.340	.348		
Math Total					
Degrees of Freedom	3	1	3	255	262
Mean Square	882.67	29.86	244.42	292.97	301.42
F	3.01	.10	.83		
P	.019	.750	.476		

Table 3.9. Summary of Differences in Educational Achievement and Post-hoc Comparisons for Four Successive Grade 7 Groups without Mental Ability Scores: Steuben Middle School

	Year (Y)	Sex (S)	Y X S	1977-78 vs 1978-79	1977-78 vs 1979-80	1977-78 vs 1980-81	1978-79 vs 1979-80	1978-79 vs 1980-81	1979-80 vs 1980-81
Word Knowledge	NS	NS	NS						
Reading	NS	NS	NS						
Reading Total	NS	NS	NS						
Language	.019	.044[1]	NS	NS	NS	Sign[2]	NS	NS	NS
Spelling	NS	<.001[1]	NS						
Math Computation	<.001	NS	NS	NS	Sign[2]	Sign[2]	NS	Sign[2]	NS
Math Concepts	.022	NS	NS	NS	Sign[2]	NS	NS	NS	NS
Math Problem Solving	NS	NS	NS						
Math Total	.008	NS	NS	NS	NS	Sign[2]	NS	NS	NS

[1]The mean achievement of the females was significantly higher than the mean of the males.

[2]The mean achievement of the group of the later year was significantly higher than the mean of the group of the prior year.

Table 3.10. Mean Educational Achievement for Four Successive Grade 8 Groups without Mental Ability Scores: Steuben Middle School

	Word Knowledge			Reading			Reading Total			Language			Spelling		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
1977-78 Total	71	24.00	10.19	70	20.43	9.48	70	44.59	19.05	68	40.66	16.02	68	27.01	9.42
Male	41	24.61	10.21	40	20.85	10.07	40	45.75	19.49	39	37.95	15.28	38	26.79	10.21
Female	30	23.17	10.28	30	19.87	8.76	30	43.03	18.65	29	44.31	16.51	30	27.30	8.48
1978-79 Total	50	24.68	8.87	52	20.62	8.93	50	45.26	17.39	52	41.48	16.56	51	28.53	7.36
Male	25	23.28	8.05	26	20.15	9.28	25	42.96	16.89	26	35.50	13.78	26	26.50	6.94
Female	25	26.08	9.59	26	21.08	8.72	25	47.56	17.92	26	47.46	17.18	25	30.64	7.31
1979-80 Total	81	26.58	10.60	81	21.95	9.61	81	48.53	19.73	80	44.03	16.83	73	28.48	8.23
Male	50	27.30	10.73	50	22.32	9.89	50	49.62	20.08	49	44.80	16.27	44	27.14	8.59
Female	31	25.42	10.47	31	21.35	9.26	31	46.77	19.34	31	42.81	17.89	29	30.52	7.33
1980-81 Total	99	25.74	10.32	101	20.34	8.90	99	46.13	18.00	100	41.07	15.41	96	29.36	8.04
Male	53	26.36	10.68	55	19.91	9.06	53	46.36	18.50	54	39.61	14.79	53	27.51	8.11
Female	46	25.02	9.96	46	20.85	8.78	46	45.87	17.61	46	42.78	16.09	43	31.65	7.41

	Math Computation			Math Concepts			Math Problem Solving			Math Total		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
1977-78 Total	69	19.04	7.91	68	18.53	7.58	69	15.20	6.81	67	53.39	20.28
Male	38	18.89	8.21	37	17.89	7.26	37	15.41	7.14	37	52.54	20.38
Female	31	19.23	7.65	31	19.29	8.00	32	14.97	6.51	30	54.43	20.45
1978-79 Total	51	21.51	7.51	51	19.75	6.82	51	16.76	6.76	51	58.02	19.44
Male	25	19.88	7.43	25	18.60	6.56	25	16.44	6.45	25	54.92	18.79
Female	26	23.08	7.38	26	20.85	7.01	26	17.08	7.16	26	61.00	19.96
1979-80 Total	74	23.49	7.49	73	21.37	7.66	72	17.39	7.23	72	62.42	21.15
Male	44	24.59	7.02	43	22.44	7.74	42	18.64	7.85	42	66.05	21.36
Female	30	21.87	7.99	30	19.83	7.41	30	15.63	5.96	30	57.33	20.10
1980-81 Total	98	22.16	7.21	97	19.95	6.64	98	16.58	5.79	97	58.85	18.03
Male	54	22.39	7.74	54	19.78	7.28	54	16.22	6.32	54	58.39	19.99
Female	44	21.89	6.57	43	20.16	5.82	44	17.02	5.09	43	59.42	15.43

Table 3.11. Tests of Significance (ANOVA) of Differences in Educational Achievement for Four Successive Grade 8 Groups without Mental Ability Scores: Steuben Middle School

Source	Year(Y)	Sex(S)	Y X S	Residual	Total
Word Knowledge					
Degrees of Freedom	3	1	3	293	300
Mean Square	93.65	47.16	66.20	103.48	102.85
F	.91	.46	.64		
P	.439	.500	.59		
Reading					
Degrees of Freedom	3	1	3	296	303
Mean Square	46.49	<.001	22.52	86.14	84.84
F	.54	<.001	.26		
P	.655	.998	.853		
Reading Total					
Degrees of Freedom	3	1	3	292	299
Mean Square	214.96	42.07	169.94	349.95	345.82
F	.61	.12	.49		
P	.606	.729	.693		
Language					
Degrees of Freedom	3	1	3	292	299
Mean Square	212.16	1244.13	538.00	254.08	259.50
F	.84	4.90	2.12		
P	.476	.028	.098		
Spelling					
Degrees of Freedom	3	1	3	280	287
Mean Square	73.00	676.50	51.11	67.26	69.28
F	1.09	10.06	.76		
P	.356	.002	.517		

Table 3.11. (Continued):

Source	Year(Y)	Sex(S)	Y X S	Residual	Total
Math Computation					
Degrees of Freedom	3	1	3	284	291
Mean Square	247.36	2.88	89.25	56.12	58.26
F	4.41	.05	1.59		
P	.005	.821	.192		
Math Concepts					
Degrees of Freedom	3	1	3	281	288
Mean Square	96.12	3.30	72.59	51.31	51.82
F	1.87	.06	1.42		
P	.134	.800	.239		
Math Problem Solving					
Degrees of Freedom	3	1	3	282	289
Mean Square	58.27	14.86	55.87	43.32	43.51
F	1.35	.34	1.29		
P	.260	.558	.278		
Math Total					
Degrees of Freedom	3	1	3	279	286
Mean Square	954.14	5.10	626.57	383.96	391.13
F	2.49	.01	1.63		
P	.061	.908	.182		

Table 3.12. Summary of Differences in Educational Achievement and Post-hoc Comparisons for Four Successive Grade 8 Groups without Mental Ability Scores: Steuben Middle School

	Year (Y)	Sex (S)	Y X S	1977-78 vs 1978-79	1977-78 vs 1979-80	1977-78 vs 1980-81	1978-79 vs 1979-80	1978-79 vs 1980-81	1979-80 vs 1980-81
Word Knowledge	NS	NS	NS						
Reading	NS	NS	NS						
Reading Total	NS	NS	NS						
Language	NS	.028[1]	NS						
Spelling	NS	.002[1]	NS						
Math Computation	.005	NS	NS	NS	NS	Sign[2]	NS	NS	NS
Math Concepts	NS	NS	NS						
Math Problem Solving	NS	NS	NS						
Math Total	NS	NS	NS						

[1] The mean achievement of the females was significantly higher than the mean of the males.

[2] The mean achievement of the group of the later year was significantly higher than the mean of the group of the prior year.

Table 3.13. Mean Educational Achievement for Four Successive Grade 7 Groups with and without Mental Ability Scores: Steuben Middle School

	Word Knowledge			Reading			Reading Total			Language			Spelling		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
1977-78 Total	326	23.12	9.74	323	19.13	8.81	323	42.37	17.68	314	37.94	15.68	310	26.14	7.06
Male	170	23.25	9.80	167	18.98	8.83	167	42.47	17.67	161	35.97	15.42	161	25.24	7.28
Female	156	22.98	9.71	156	19.29	8.82	156	42.27	17.74	153	40.01	15.73	149	27.11	6.70
1978-79 Total	377	21.35	8.87	381	16.97	7.92	377	38.37	16.02	378	39.79	15.65	374	26.67	7.31
Male	171	22.17	9.25	175	17.58	8.53	171	39.89	17.12	173	38.96	15.38	173	26.23	7.24
Female	206	20.67	8.49	206	16.44	7.35	206	37.11	14.97	205	40.49	15.88	201	27.04	7.36
1979-80 Total	351	22.63	9.16	349	18.23	8.49	349	41.54	16.85	350	41.03	15.25	347	26.47	7.30
Male	177	22.36	8.93	175	18.02	8.18	175	40.54	16.23	176	38.99	13.67	172	24.88	6.73
Female	174	22.90	9.42	174	19.63	8.74	174	42.53	17.45	174	43.10	16.49	175	28.03	7.52
1980-81 Total	374	24.00	8.45	374	20.17	7.95	374	44.17	15.52	373	45.93	15.31	367	28.08	6.83
Male	180	23.87	8.06	180	19.62	7.36	180	43.49	14.46	180	43.12	14.30	176	27.00	6.64
Female	194	24.12	8.82	194	20.68	8.45	194	44.80	16.46	193	48.55	15.77	191	29.08	6.86

	Math Computation			Math Concepts			Math Problem Solving			Math Total		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
1977-78 Total	309	18.07	6.58	308	17.45	6.70	304	15.06	6.24	303	50.84	18.02
Male	159	17.70	6.60	160	17.07	7.32	156	15.22	6.45	155	50.43	18.76
Female	150	18.46	6.56	148	17.87	5.95	148	14.89	6.03	148	51.26	17.27
1978-79 Total	377	19.89	6.72	375	18.13	7.06	378	14.83	6.14	375	52.93	18.22
Male	174	19.66	6.97	173	18.87	6.99	175	15.67	6.29	173	54.30	18.44
Female	203	20.08	6.51	202	17.49	7.07	203	14.10	5.92	202	51.75	18.00
1979-80 Total	350	22.46	6.35	349	20.31	6.65	349	15.78	5.98	348	58.57	17.02
Male	175	22.25	6.44	174	20.06	6.76	174	15.73	5.94	173	58.10	17.16
Female	175	22.67	6.27	175	20.55	6.55	175	15.82	6.03	175	59.05	16.92
1980-81 Total	369	23.70	6.49	367	20.39	6.45	367	16.72	5.68	366	60.89	16.74
Male	177	22.75	6.22	176	19.57	6.47	175	16.24	5.59	175	58.54	16.38
Female	192	24.58	6.62	191	21.14	6.35	192	17.17	5.71	191	63.04	16.81

Table 3.14. Tests of Significance (ANOVA) of Differences in Educational Achievement for Four Successive Grade 7 Groups with and without Mental Ability Scores: Steuben Middle School

Source	Year(Y)	Sex(S)	Group(G)	Y X S	Y X G	S X G	Y X S X G	Residual	Total
Word Knowledge									
Degrees of Freedom	3	1	1	3	3	1	3	1412	1427
Mean Square	96.17	46.93	725.85	32.01	178.86	4.43	93.59	81.04	82.57
F	1.19	.58	8.96	.40	2.21	.06	1.16		
P	.31	.45	.003	.757	.085	.815	.326		
Reading									
Degrees of Freedom	3	1	1	3	3	1	3	1411	1426
Mean Square	220.03	57.78	289.45	61.36	154.36	10.36	30.50	68.07	69.80
F	3.23	.85	4.25	.90	2.27	.15	.45		
P	.022	.357	.039	.440	.079	.697	.719		
Reading Total									
Degrees of Freedom	3	1	1	3	3	1	3	1407	1422
Mean Square	533.26	3.09	1817.31	160.91	636.21	.01	218.99	269.74	276.00
F	1.98	.01	6.74	.60	2.36	<.001	.81		
P	.116	.915	.010	.617	.070	.995	.487		
Language									
Degrees of Freedom	3	1	1	3	3	1	3	1399	1414
Mean Square	2049.91	2691.71	1142.59	89.60	380.43	2.08	108.13	235.17	247.55
F	8.72	11.45	4.86	.38	1.62	.01	.46		
P	<.001	.001	.028	.767	.183	.925	.710		
Spelling									
Degrees of Freedom	3	1	1	3	3	1	3	1382	1397
Mean Square	153.03	1145.74	71.46	37.10	13.49	131.13	69.89	49.74	51.27
F	3.08	23.04	1.44	.75	.27	2.64	1.41		
P	.027	<.001	.231	.525	.846	.105	.240		

Table 3.14. (Continued):

Source	Year(Y)	Sex(S)	Group(G)	Y X S	Y X G	S X G	Y X S X G	Residual	Total
Math Computation									
Degrees of Freedom	3	1	1	3	3	1	3	1389	1404
Mean Square	1270.66	54.23	561.88	19.73	6.91	21.74	34.75	42.37	47.32
F	29.99	1.28	13.26	.47	.16	.51	.82		
P	<.001	.258	<.001	.706	.921	.474	.483		
Math Concepts									
Degrees of Freedom	3	1	1	3	3	1	3	1383	1398
Mean Square	405.75	59.75	306.38	73.77	26.64	41.91	29.56	44.81	46.74
F	9.06	1.33	6.84	1.65	.59	.94	.66		
P	<.001	.248	.009	.177	.619	.334	.577		
Math Problem Solving									
Degrees of Freedom	3	1	1	3	3	1	3	1382	1397
Mean Square	109.86	59.89	210.95	48.10	7.65	23.22	43.57	35.82	36.50
F	3.07	1.67	5.89	1.34	.21	.65	1.22		
P	.027	.196	.015	.259	.887	.421	.302		
Math Total									
Degrees of Freedom	3	1	1	3	3	1	3	1376	1391
Mean Square	4002.06	34.19	3153.80	354.28	45.45	13.73	304.23	303.89	321.86
F	13.17	.11	10.38	1.17	.15	..05	1.00		
P	<.001	.737	.001	.322	.930	.832	.391		

Table 3.15. Summary of Differences in Educational Achievement and Post-hoc Comparisons for Four Successive Grade 7 Groups with and without Mental Ability Scores: Steuben Middle School

	Year(Y)	Sex(S)	Group(G)	Y X S	Y X G	S X G	Y X S X G
Word Knowledge	NS	NS	.003[2]	NS	NS	NS	NS
Reading	.022	NS	.039[2]	NS	NS	NS	NS
Reading Total	NS	NS	.010[2]	NS	NS	NS	NS
Language	<.001	.001[1]	.028[2]	NS	NS	NS	NS
Spelling	.027	<.001[1]	NS	NS	NS	NS	NS
Math Computation	<.001	NS	<.001[2]	NS	NS	NS	NS
Math Concepts	<.001	NS	.009[2]	NS	NS	NS	NS
Math Problem Solving	.027	NS	.015[2]	NS	NS	NS	NS
Math Total	<.001	NS	.001[2]	NS	NS	NS	NS

	1977-78 vs 1978-79	1977-78 vs 1979-80	1977-78 vs 1980-81	1978-79 vs 1979-80	1978-79 vs 1980-81	1979-80 vs 1980-81
Reading	Sign[3]	NS	NS	Sign[4]	Sign[4]	Sign[4]
Language	NS	NS	Sign[4]	NS	Sign[4]	Sign[4]
Spelling	NS	NS	Sign[4]	NS	NS	Sign[4]
Math Computation	Sign[4]	Sign[4]	Sign[4]	Sign[4]	Sign[4]	NS
Math Concepts	NS	Sign[4]	Sign[4]	Sign[4]	Sign[4]	NS
Math Problem Solving	NS	NS	Sign[4]	NS	Sign[4]	NS
Math Total	NS	Sign[4]	Sign[4]	Sign[4]	Sign[4]	NS

[1]The mean achievement of the females was significantly higher than the mean of the males.

[2]The mean achievement of the group with mental ability scores was significantly higher than the mean of the group without mental ability scores.

[3]The mean achievement of the group of the prior year was significantly higher than the mean of the group of the later year.

[4]The mean achievement of the group of the later year was significantly higher than the mean of the group of the prior year.

Table 3.16. Mean Educational Achievement for Four Successive Grade 8 Groups with and without Mental Ability Scores: Steuben Middle School

	Word Knowledge			Reading			Reading Total			Language			Spelling		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
1977-78 Total	301	26.08	9.65	299	22.11	9.47	299	48.22	18.27	296	43.91	15.22	300	27.51	8.02
Male	145	27.01	10.40	143	23.13	10.14	143	50.21	19.73	142	41.55	16.60	145	26.19	8.37
Female	156	25.22	8.84	156	21.19	8.75	156	46.40	16.69	154	46.08	14.59	155	28.75	7.49
1978-79 Total	287	27.79	9.60	289	22.74	9.07	287	50.54	17.93	291	45.73	16.31	290	29.43	6.70
Male	145	27.88	9.77	146	22.66	9.27	145	50.48	18.24	148	42.91	16.37	147	28.07	6.76
Female	142	27.71	9.45	143	22.82	8.89	142	50.61	17.68	143	48.64	15.78	143	30.84	6.35
1979-80 Total	353	26.01	9.91	353	21.94	9.20	353	47.95	18.34	347	45.33	16.58	340	29.23	7.32
Male	171	26.88	10.21	171	22.29	9.52	171	49.16	18.90	170	44.40	16.48	162	28.03	7.91
Female	182	25.19	9.58	182	21.61	8.91	182	46.80	17.79	177	46.23	16.68	178	30.31	6.58
1980-81 Total	324	28.23	10.14	328	22.11	8.83	324	50.35	17.76	326	45.69	15.26	319	30.17	7.28
Male	154	28.65	10.17	157	21.79	9.11	154	50.47	18.10	156	44.33	14.68	154	29.09	7.05
Female	170	27.85	10.13	171	22.41	8.57	170	50.24	17.49	170	46.94	15.71	165	31.18	7.38

	Math Computation			Math Concepts			Math Problem Solving			Math Total		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
1977-78 Total	296	20.81	7.68	297	20.34	7.67	298	17.40	7.07	289	59.04	20.82
Male	142	20.76	8.26	140	20.14	8.22	142	17.82	7.60	138	59.07	22.51
Female	154	20.86	7.14	157	20.53	7.16	156	17.03	6.54	151	59.01	19.23
1978-79 Total	287	22.78	7.15	286	22.04	7.49	287	18.12	6.74	286	62.98	20.11
Male	142	22.32	7.39	141	21.74	7.88	142	18.19	6.67	141	62.35	20.71
Female	145	23.23	6.90	145	22.32	7.11	145	18.04	6.84	145	63.59	19.57
1979-80 Total	340	23.84	7.37	338	21.79	7.43	339	17.89	7.03	336	63.72	20.36
Male	160	24.04	7.36	159	22.02	7.76	160	18.55	7.54	158	64.73	21.42
Female	180	23.66	7.40	179	21.59	7.14	179	17.31	6.50	178	62.82	19.38
1980-81 Total	321	24.57	6.91	320	22.18	6.84	321	18.46	6.29	320	65.27	18.40
Male	155	24.88	7.19	155	22.30	7.25	155	18.59	6.61	155	65.77	19.50
Female	166	24.28	6.65	165	22.05	6.45	166	18.35	6.00	165	64.80	17.35

Table 3.17. Tests of Significance (ANOVA) of Differences in Educational Achievement for Four Successive Grade 8 Groups with and without Mental Ability Scores: Steuben Middle School

Source	Year(Y)	Sex(S)	Group(G)	Y X S	Y X G	S X G	Y X S X G	Residual	Total
Word Knowledge									
Degrees of Freedom	3	1	1	3	3	1	3	1249	1264
Mean Square	199.17	183.55	1333.19	78.96	228.33	45.30	40.37	95.54	97.55
F	2.09	1.92	13.95	.83	2.39	.47	.42		
P	.100	.166	<.001	.479	.067	.491	.737		
Reading									
Degrees of Freedom	3	1	1	3	3	1	3	1253	1268
Mean Square	7.12	31.16	791.03	66.45	82.00	27.70	8.71	83.21	83.47
F	.09	.37	9.51	.80	.99	.33	.11		
P	.968	.54	.002	.495	.399	.564	.957		
Reading Total									
Degrees of Freedom	3	1	1	3	3	1	3	1247	1262
Mean Square	196.66	327.70	4055.80	283.87	570.93	163.59	84.78	324.06	327.71
F	.61	1.01	12.52	.88	1.76	.51	.26		
P	.611	.315	<.001	.453	.153	.478	.853		
Language									
Degrees of Freedom	3	1	1	3	3	1	3	1244	1259
Mean Square	134.10	3416.15	3903.30	570.44	250.44	171.22	325.82	245.68	251.79
F	.55	13.91	15.89	2.32	1.02	.70	1.33		
P	.651	<.001	<.001	.074	.383	.404	.264		
Spelling									
Degrees of Freedom	3	1	1	3	3	1	3	1233	1248
Mean Square	294.82	1414.23	113.76	17.71	4.18	42.14	82.15	52.69	54.81
F	5.60	26.84	2.16	.34	.08	.80	1.56		
P	.001	<.001	.142	.799	.971	.371	.198		

Table 3.17. (Continued):

Source	Year(Y)	Sex(S)	Group(G)	Y X S	Y X G	S X G	Y X S X G	Residual	Total
Math Computation									
Degrees of Freedom	3	1	1	3	3	1	3	1228	1243
Mean Square	631.38	.37	869.93	86.53	88.25	2.91	69.60	52.25	54.86
F	9.96	.01	16.65	1.66	1.69	.06	1.33		
P	<.001	.933	<.001	.175	.168	.813	.262		
Math Concepts									
Degrees of Freedom	3	1	1	3	3	1	3	1225	1240
Mean Square	160.71	1.52	1085.89	59.94	65.90	15.35	63.51	53.34	54.50
F	3.01	.03	20.36	1.12	1.24	.29	1.19		
P	.029	.866	<.001	.345	.295	.592	.312		
Math Problem Solving									
Degrees of Freedom	3	1	1	3	3	1	3	1229	1244
Mean Square	72.89	93.68	895.15	46.65	48.03	5.66	42.42	45.37	46.12
F	1.61	2.07	19.73	1.03	1.06	.13	.94		
P	.186	.151	<.001	.379	.366	.724	.423		
Math Total									
Degrees of Freedom	3	1	1	3	3	1	3	1215	1230
Mean Square	1816.56	56.92	8237.88	492.07	496.93	73.72	560.96	390.38	401.10
F	4.65	.15	21.10	1.26	1.27	.19	1.44		
P	.003	.703	<.001	.287	.282	.664	.230		

Table 3.18. Summary of Differences in Educational Achievement and Post-hoc Comparisons for Four Successive Grade 8 Groups with and without Mental Ability Scores: Steuben Middle School

	Year(Y)	Sex(S)	Group(G)	Y X S	Y X G	S X G	Y X S X G
Word Knowledge	.100	NS	<.001[2]	NS	.067	NS	NS
Reading	NS	NS	.002[2]	NS	NS	NS	NS
Reading Total	NS	NS	<.001[2]	NS	NS	NS	NS
Language	NS	<.001[1]	<.001[2]	.074	NS	NS	NS
Spelling	.001	<.001[1]	NS	NS	NS	NS	NS
Math Computation	<.001	NS	<.001[2]	NS	NS	NS	NS
Math Concepts	.029	NS	<.001[2]	NS	NS	NS	NS
Math Problem Solving	NS	NS	<.001[2]	NS	NS	NS	NS
Math Total	.003	NS	<.001[2]	NS	NS	NS	NS

	1977-78 vs 1978-79	1977-78 vs 1979-80	1977-78 vs 1980-81	1978-79 vs 1979-80	1978-79 vs 1979-80	1979-80 vs 1980-81
Spelling	Sign[3]	Sign[3]	Sign[3]	NS	NS	NS
Math Computation	Sign[3]	Sign[3]	Sign[3]	NS	Sign[3]	NS
Math Concepts	Sign[3]	NS	Sign[3]	NS	NS	NS
Math Total	NS	Sign[3]	Sign[3]	NS	NS	NS

[1]The mean achievement of the females was significantly higher than the mean of the males.

[2]The mean achievement of the group with mental ability scores was significantly higher than the mean of the group without mental ability scores.

[3]The mean achievement of the group of the later year was significantly higher than the mean of the group of the prior year.

Table 3.19. Mean Educational Achievement for 1978-79 Grade 8 Students without Mental Ability Scores Who Were Present in Grade 7 and for 1978-79 Grade 8 Students Who Were Not Present in Grade 7: Steuben Middle School

	Word Knowledge			Reading			Reading Total			Language		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
Present in Grade 7												
Total	29	24.28	8.27	29	20.34	8.92	29	44.62	16.83	29	43.07	16.15
Male	14	22.71	7.23	14	19.29	9.60	14	42.00	16.65	14	36.86	13.13
Female	15	25.73	9.14	15	21.33	8.45	15	47.07	17.20	15	48.87	16.95
Not Present in Grade 7												
Total	21	25.24	9.83	23	20.96	9.13	21	46.14	18.52	23	39.48	17.20
Male	11	24.00	9.31	12	21.17	9.20	11	44.18	17.93	12	33.92	14.92
Female	10	26.60	10.71	11	20.73	9.49	10	48.30	19.88	11	45.55	18.12

	Spelling			Math Computation			Math Concepts			Math Problem Solving			Math Total		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
Present in Grade 7															
Total	29	29.00	7.87	29	22.41	7.59	29	20.72	6.72	29	18.59	6.81	29	61.72	19.71
Male	14	27.07	7.60	14	21.14	7.90	14	19.57	7.05	14	18.21	7.44	14	58.93	20.75
Female	15	30.80	7.94	15	23.60	7.35	15	21.80	6.45	15	18.93	6.40	15	64.33	19.03
Not Present in Grade 7															
Total	22	27.91	6.75	22	20.32	7.40	22	18.45	6.90	22	14.36	6.03	22	53.14	18.38
Male	12	25.83	6.35	11	18.27	6.81	11	17.36	5.99	11	14.18	4.21	11	49.82	15.37
Female	10	30.40	6.67	11	22.36	7.71	11	19.55	7.84	11	14.55	7.65	11	56.45	21.19

Table 3.20. Tests of Significance (ANOVA) of Differences in Educational Achievement between 1978-79 Grade 8 Students without Mental Ability Scores Who Were Present in Grade 7 and 1978-79 Grade 8 Students Who Were Not Present in Grade 7: Steuben Middle School

Source	Group(G)	Sex(S)	G X S	Residual	Total
Word Knowledge					
Degrees of Freedom	1	1	1	46	49
Mean Square	14.16	100.88	.53	81.44	78.75
F	.17	1.24	.01		
P	.679	.272	.936		
Reading					
Degrees of Freedom	1	1	1	48	51
Mean Square	5.39	11.67	19.80	83.96	79.73
F	.06	.14	.24		
P	.801	.711	.629		
Reading Total					
Degrees of Freedom	1	1	1	46	49
Mean Square	35.72	272.00	2.73	315.67	302.52
F	.11	.86	.01		
P	.738	.358	.926		
Language					
Degrees of Freedom	1	1	1	48	51
Mean Square	125.41	1820.05	.46	249.90	274.14
F	.50	7.28	<.01		
P	.48	.010	.966		
Spelling					
Degrees of Freedom	1	1	1	47	50
Mean Square	8.68	212.24	2.19	52.71	54.13
F	.17	4.03	.04		
P	.687	.051	.840		

Table 3.20. (Continued):

Source	Group(G)	Sex(S)	G X S	Residual	Total
Math Computation					
Degrees of Freedom	1	1	1	47	50
Mean Square	52.10	127.42	8.34	55.87	56.34
F	.93	2.28	.15		
P	.339	.138	.701		
Math Concepts					
Degrees of Freedom	1	1	1	47	50
Mean Square	62.28	62.14	.007	46.83	46.55
F	1.33	1.33	<.001		
P	.255	.255	.99		
Math Problem Solving					
Degrees of Freedom	1	1	1	47	50
Mean Square	221.96	4.08	.40	43.74	45.66
F	5.08	.09	.01		
P	.029	.761	.925		
Math Total					
Degrees of Freedom	1	1	1	47	50
Mean Square	900.47	449.02	4.74	372.78	377.94
F	2.42	1.21	.01		
P	.127	.278	.91		

Table 3.21. Mean Educational Achievement for 1979-80 Grade 8 Students without Mental Ability Scores Who Were Present in Grade 7 and for 1979-80 Grade 8 Students Who Were Not Present in Grade 7: Steuben Middle School

	Word Knowledge			Reading			Reading Total			Language		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
Present in Grade 7												
Total	34	27.26	7.77	34	21.79	7.78	34	49.06	14.79	34	44.41	15.62
Male	20	28.20	7.35	20	22.05	7.61	20	50.25	14.06	20	43.70	13.01
Female	14	25.93	8.42	14	21.43	8.29	14	47.36	16.15	14	45.43	19.23
Not Present in Grade 7												
Total	47	26.09	12.31	47	22.06	10.82	47	48.15	22.79	46	43.74	17.84
Male	30	26.70	12.57	30	22.50	11.28	30	49.20	23.47	29	45.55	18.36
Female	17	25.00	12.15	17	21.29	10.25	17	46.29	22.12	17	40.65	16.99

	Spelling			Math Computation			Math Concepts			Math Problem Solving			Math Total		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
Present in Grade 7															
Total	31	28.23	6.74	31	23.58	5.98	31	21.90	7.18	31	17.94	6.04	31	63.42	17.66
Male	18	27.06	6.36	18	23.83	4.82	18	21.44	7.76	18	18.94	6.13	18	64.22	17.31
Female	13	29.85	7.16	13	23.23	7.51	13	22.54	6.55	13	16.54	5.85	13	62.31	18.78
Not Present in Grade 7															
Total	42	28.67	9.25	43	23.42	8.49	42	20.98	8.06	41	16.98	8.07	41	61.66	23.64
Male	26	27.19	9.96	26	25.12	8.26	25	23.16	7.81	24	18.42	9.06	24	67.42	24.24
Female	16	31.06	7.65	17	20.82	8.41	17	17.76	7.53	17	14.94	6.12	17	53.53	20.78

Table 3.22. Tests of Significance (ANOVA) of Differences in Educational Achievement between 1979-80 Grade 8 Students without Mental Ability Scores Who Were Present in Grade 7 and 1979-80 Grade 8 Students Who Were Not Present in Grade 7: Steuben Middle School

Source	Group(G)	Sex(S)	G X S	Residual	Total
Word Knowledge					
Degrees of Freedom	1	1	1	77	80
Mean Square	32.09	72.32	1.53	115.49	112.42
F	.28	.63	.01		
P	.600	.431	.909		
Reading					
Degrees of Freedom	1	1	1	77	80
Mean Square	.97	17.36	1.60	95.60	92.27
F	.01	.18	.02		
P	.920	.671	.897		
Reading Total					
Degrees of Freedom	1	1	1	77	80
Mean Square	21.91	160.55	<.01	401.94	389.08
F	.05	.40	<.001		
P	.816	.529	.999		
Language					
Degrees of Freedom	1	1	1	76	79
Mean Square	11.21	77.52	204.90	290.61	283.27
F	.04	.27	.71		
P	.845	.607	.404		
Spelling					
Degrees of Freedom	1	1	1	69	72
Mean Square	5.82	202.15	4.99	67.56	67.67
F	.09	2.99	.07		
P	.770	.088	.787		

Table 3.22. (Continued):

Source	Group(G)	Sex(S)	G X S	Residual	Total
Math Computation					
Degrees of Freedom	1	1	1	70	73
Mean Square	.93	132.84	59.24	55.80	56.14
F	.02	2.38	1.06		
P	.898	.127	.306		
Math Concepts					
Degrees of Freedom	1	1	1	69	72
Mean Square	16.62	121.53	182.06	56.64	58.71
F	.29	2.15	3.21		
P	.590	.148	.077		
Math Problem Solving					
Degrees of Freedom	1	1	1	68	71
Mean Square	16.75	158.99	4.91	51.99	52.33
F	.32	3.06	.09		
P	.572	.085	.760		
Math Total					
Degrees of Freedom	1	1	1	68	71
Mean Square	57.32	1331.52	615.30	437.50	447.20
F	.13	3.04	1.41		
P	.719	.086	.240		

Table 3.23. Mean Educational Achievement for 1980-81 Grade 8 Students without Mental Ability Scores Who Were Present in Grade 7 and for 1980-81 Grade 8 Students Who Were Not Present in Grade 7: Steuben Middle School

	Word Knowledge			Reading			Reading Total			Language		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
Present in Grade 7												
Total	32	26.16	9.41	32	22.16	8.42	32	48.31	16.76	33	42.67	15.59
Male	19	27.79	10.12	19	23.16	8.85	19	50.95	18.02	19	41.89	16.56
Female	13	23.77	8.03	13	20.69	7.86	13	44.46	14.54	14	43.71	14.71
Not Present in Grade 7												
Total	67	25.54	10.80	69	19.49	9.05	67	45.09	18.60	67	40.28	15.37
Male	34	25.56	11.05	36	18.19	8.81	34	43.79	18.52	35	38.37	13.84
Female	33	25.52	10.70	33	20.91	9.23	33	46.42	18.86	32	42.38	16.87

	Spelling			Math Computation			Math Concepts			Math Problem Solving			Math Total		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
Present in Grade 7															
Total	32	28.31	7.39	32	22.44	7.61	31	21.52	7.38	32	16.59	5.82	31	61.03	19.04
Male	18	26.33	6.97	18	24.00	6.90	18	22.44	8.24	18	17.17	7.21	18	63.61	21.50
Female	14	30.86	7.38	14	20.43	8.25	13	20.23	6.06	14	15.86	3.44	13	57.46	15.07
Not Present in Grade 7															
Total	64	29.89	8.34	66	22.03	7.06	66	19.21	6.19	66	16.58	5.82	66	57.82	17.59
Male	35	28.11	8.67	36	21.58	8.10	36	18.44	6.47	36	15.75	5.89	36	55.78	18.96
Female	29	32.03	7.53	30	22.57	5.65	30	20.13	5.82	30	17.57	5.67	30	60.27	15.76

Table 3.24. Tests of Significance (ANOVA) of Differences in Educational Achievement between 1980-81 Grade 8 Students without Mental Ability Scores Who Were Present in Grade 7 and 1980-81 Grade 8 Students Who Were Not Present in Grade 7: Steuben Middle School

Source	Group(G)	Sex(S)	G X S	Residual	Total
Word Knowledge					
Degrees of Freedom	1	1	1	95	98
Mean Square	5.53	41.24	83.55	108.55	106.58
F	.05	.38	.77		
P	.822	.539	.383		
Reading					
Degrees of Freedom	1	1	1	97	100
Mean Square	163.80	30.79	143.02	78.27	79.21
F	2.09	.39	1.83		
P	.151	.532	.180		
Reading Total					
Degrees of Freedom	1	1	1	95	98
Mean Square	220.55	1.48	439.06	327.22	323.99
F	.67	<.01	1.34		
P	.414	.947	.250		
Language					
Degrees of Freedom	1	1	1	96	99
Mean Square	144.40	268.69	25.94	240.44	237.40
F	.60	1.12	.11		
P	.440	.293	.743		
Spelling					
Degrees of Freedom	1	1	1	92	95
Mean Square	48.87	402.97	1.92	61.70	64.57
F	.79	6.53	.03		
P	.376	.012	.860		

Table 3.24. (Continued):

Source	Group(G)	Sex(S)	G X S	Residual	Total
Math Computation					
Degrees of Freedom	1	1	1	94	97
Mean Square	3.43	5.98	110.29	52.34	51.95
F	.07	.11	2.11		
P	.799	.736	.150		
Math Concepts					
Degrees of Freedom	1	1	1	93	96
Mean Square	113.42	4.99	78.67	43.45	44.13
F	2.61	.12	1.81		
P	.110	.735	.182		
Math Problem Solving					
Degrees of Freedom	1	1	1	94	97
Mean Square	.022	15.55	51.96	33.83	33.48
F	<.01	.46	1.54		
P	.980	.499	.218		
Math Total					
Degrees of Freedom	1	1	1	93	96
Mean Square	223.08	30.57	584.62	326.56	325.03
F	.68	.09	1.79		
P	.411	.760	.184		

Table 3.25. Summary of Differences in Educational Achievement for Three Successive Grade 8 Groups of Students without Mental Ability Scores Who Were Present in Grade 7 and Grade 8 Students Who Were Not Present in Grade 7: Steuben Middle School

	Grade 8 in 1978-79			Grade 8 in 1979-80			Grade 8 in 1980-81		
	Group	Sex	G X S	Group	Sex	G X S	Group	Sex	G X S
Word Knowledge	NS	NS	NS	NS	NS	NS	NS	NS	NS
Reading	NS	NS	NS	NS	NS	NS	NS	NS	KS
Reading Total	NS	NS	NS	NS	NS	NS	NS	NS	NS
Language	NS	.010[2]	NS	NS	NS	NS	NS	NS	NS
Spelling	NS	.051[2]	NS	NS	NS	NS	NS	.012[2]	NS
Math Computation	NS	NS	NS	NS	NS	NS	NS	NS	NS
Math Concepts	NS	NS	NS	NS	NS	NS	NS	NS	NS
Math Problem Solving	.029[1]	NS	NS	NS	NS	NS	NS	NS	NS
Math Total	NS	NS	NS	NS	NS	NS	NS	NS	NS

[1] The mean achievement of the group present in Grade 7 was significantly higher than the mean of the group not present in Grade 7.

[2] The mean achievement of the females was significantly higher than the mean of the males.

Table 3.26. Mean Mental Ability and Mean Educational Achievement for Longitudinal Cohort 1: Steuben Middle School

1977-1978	Mental Ability			Word Knowledge		Reading		Reading Total		Language	
Grade 7	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	191	44.24	15.37	25.34	9.84	21.32	8.58	46.66	17.64	40.64	15.98
Male	97	44.86	15.76	26.39	9.34	21.87	8.37	48.26	16.91	39.80	15.67
Female	94	43.61	15.01	24.26	10.27	20.76	8.80	45.01	18.31	41.50	16.32
1st Quarter											
Total	48	24.56	5.16	17.00	6.97	14.29	6.45	31.29	12.55	26.56	10.38
Male	25	25.16	5.28	19.04	6.64	15.00	6.49	34.04	12.11	27.12	10.09
Female	23	23.91	5.05	14.78	6.76	13.52	6.46	28.30	12.66	25.96	10.89
2nd Quarter											
Total	48	38.13	3.38	20.58	7.19	17.44	6.09	38.02	12.00	33.29	8.91
Male	22	37.64	3.08	20.64	5.53	17.68	5.33	38.32	9.45	31.00	7.38
Female	26	38.54	3.62	20.54	8.45	17.23	6.76	37.77	13.69	35.23	9.75
3rd Quarter											
Total	47	50.45	3.72	28.17	6.26	23.34	6.47	51.51	11.18	44.15	11.23
Male	22	50.09	3.54	28.55	5.34	23.23	6.19	51.77	9.64	41.41	12.08
Female	25	50.76	3.91	27.84	7.07	23.44	6.83	51.28	12.57	46.56	10.07
4th Quarter											
Total	48	63.96	5.82	35.67	6.47	30.25	5.14	65.92	10.71	58.63	10.99
Male	28	64.00	6.10	35.79	7.25	30.21	5.28	66.00	11.51	56.79	10.67
Female	20	63.90	5.56	35.50	5.38	30.30	5.07	65.80	9.77	61.20	11.18

Table 3.26. (Continued):

1977-1978	Spelling		Math Computation		Math Concepts		Math Problem Solving		Math Total	
Grade 7	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	26.85	6.98	18.91	6.66	18.64	6.73	15.75	6.51	53.30	18.44
Male	26.74	7.61	18.80	6.79	18.82	7.57	16.38	6.95	54.01	19.78
Female	26.96	6.31	19.02	6.56	18.45	5.78	15.11	5.99	52.57	17.01
1st Quarter										
Total	23.02	6.31	13.48	4.27	13.19	3.91	10.77	3.83	37.44	9.66
Male	22.88	7.21	13.80	4.63	12.80	4.78	11.40	3.96	38.00	11.24
Female	23.17	5.32	13.13	3.92	13.61	2.71	10.49	3.65	36.83	7.79
2nd Quarter										
Total	24.65	6.64	16.23	4.26	15.81	4.28	12.69	4.10	44.73	10.59
Male	24.41	7.18	16.00	5.11	15.41	4.59	12.41	3.94	43.82	11.62
Female	24.85	6.28	16.42	3.49	16.15	4.06	12.92	4.30	45.50	9.80
3rd Quarter										
Total	27.66	6.01	20.04	5.44	19.19	5.22	15.98	4.81	55.21	13.39
Male	26.68	7.17	18.73	5.22	18.95	6.06	15.27	4.54	52.95	13.46
Female	28.52	4.75	21.20	5.46	19.40	4.46	16.60	5.04	57.20	13.27
4th Quarter										
Total	32.08	5.39	25.92	5.01	26.38	4.81	23.58	3.40	75.88	11.71
Male	32.07	5.64	25.54	5.18	26.79	5.43	24.82	3.34	77.14	12.47
Female	32.10	5.18	26.45	4.85	25.80	3.82	21.85	3.96	74.10	10.61

Table 3.26. (Continued):

1978-1979	Word Knowledge		Reading		Reading Total		Language	
Grade 8	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	29.31	9.73	24.22	9.17	53.53	18.16	48.23	16.28
Male	30.52	9.38	24.82	9.01	55.34	17.59	47.60	16.14
Female	28.06	9.97	23.60	9.33	51.66	18.63	48.88	16.47
1st Quarter								
Total	19.96	7.48	15.04	6.38	35.00	12.85	32.08	9.81
Male	22.48	7.82	16.48	6.75	38.96	13.74	33.24	10.94
Female	17.22	6.14	13.48	5.69	30.70	10.46	30.83	8.47
2nd Quarter								
Total	25.52	6.72	20.75	5.65	46.27	11.31	42.19	10.50
Male	25.09	6.89	20.32	5.13	45.41	10.79	39.91	9.57
Female	25.88	6.70	21.12	6.13	47.00	11.90	44.12	10.23
3rd Quarter								
Total	32.09	5.51	27.98	5.76	60.06	10.15	52.15	10.60
Male	33.41	4.25	29.05	5.88	62.45	9.38	51.00	10.47
Female	30.92	6.28	27.04	5.59	57.96	10.52	55.04	10.56
4th Quarter								
Total	39.73	5.40	33.19	6.33	72.92	10.39	65.60	11.30
Male	39.68	5.49	32.50	6.65	72.18	10.46	63.79	11.97
Female	39.80	5.41	34.15	5.88	73.95	10.48	68.15	10.02

Table 3.26. (Continued):

1978-1979	Spelling		Math Computation		Math Concepts		Math Problem Solving		Math Total	
Grade 8	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	29.94	6.46	23.51	7.19	23.07	7.67	18.82	6.86	65.41	20.52
Male	29.08	6.73	23.88	7.35	23.65	7.86	19.44	6.68	66.97	20.70
Female	30.83	6.07	23.14	7.03	22.48	7.46	18.18	7.01	63.80	20.33
1st Quarter										
Total	26.13	6.01	17.48	4.64	16.31	4.54	13.00	4.54	46.79	12.17
Male	25.24	6.77	18.32	5.59	16.80	4.89	14.24	4.70	49.36	13.70
Female	27.09	5.04	16.57	3.19	15.78	4.17	11.65	4.04	44.00	9.81
2nd Quarter										
Total	27.60	5.56	21.00	4.63	20.00	4.89	16.42	4.57	57.42	12.24
Male	26.09	5.71	20.91	4.65	20.55	4.39	16.86	4.68	58.32	12.36
Female	28.88	5.19	21.08	4.71	19.54	5.32	16.04	4.54	56.65	12.33
3rd Quarter										
Total	31.30	5.23	24.34	6.05	24.53	6.61	19.68	5.48	68.55	15.95
Male	29.86	4.74	23.82	6.07	23.82	7.25	18.91	5.04	66.55	15.67
Female	32.56	5.41	24.80	6.12	25.16	6.08	20.36	5.86	70.32	16.31
4th Quarter										
Total	34.77	5.34	31.25	4.95	31.48	4.44	26.21	4.70	88.94	12.70
Male	34.25	5.33	31.21	5.34	32.07	4.17	26.54	4.42	89.82	12.51
Female	35.50	5.39	31.30	4.66	30.65	4.78	25.75	5.16	87.70	13.17

Table 3.27. Tests of Significance (Repeated Measures ANOVA) of Differences in Educational Achievement for Longitudinal Cohort 1: Steuben Middle School

Source	Sex(S)	Quarter(Q)	S X Q	Error	Gain(G)	G X S	G X Q	G X S X Q	Error
Word Knowledge									
Degrees of Freedom	1	3	3	183	1	1	3	3	183
Mean Square	219.20	6736.41	127.67	73.53	1494.55	3.28	15.52	9.04	10.45
F	2.98	91.62	1.74		143.03	.31	1.48	.86	
P	.086	<.001	.161		<.001	.576	.220	.460	
Reading									
Degrees of Freedom	1	3	3	183	1	1	3	3	183
Mean Square	25.94	5350.28	43.52	62.44	816.37	1.27	64.77	21.65	11.12
F	.42	85.69	.70		73.40	.11	5.82	1.95	
P	.520	<.001	.555		<.001	.735	.001	.124	
Reading Total									
Degrees of Freedom	1	3	3	183	1	1	3	3	183
Mean Square	395.94	24085.38	312.26	233.68	4520.09	8.64	121.98	57.76	25.22
F	1.69	103.07	1.34		179.22	.34	4.84	2.29	
P	.195	<.001	.264		<.001	.559	.003	.080	
Language									
Degrees of Freedom	1	3	3	183	1	1	3	3	183
Mean Square	769.68	19477.21	228.91	180.33	5460.05	8.76	67.87	2.60	34.23
F	4.27	108.01	1.27		159.51	.26	1.98	.08	
P	.040	<.001	.286		<.001	.614	.118	.973	
Spelling									
Degrees of Freedom	1	3	3	183	1	1	3	3	183
Mean Square	184.75	1471.03	11.60	56.39	907.85	52.98	3.25	2.42	11.62
F	3.28	26.09	.21		78.10	4.56	.28	.21	
P	.072	<.001	.892		<.001	.034	.840	.891	

Table 3.27. (Continued):

Source	Sex(S)	Quarter(Q)	S X Q	Error	Gain(G)	G X S	G X Q	G X S X Q	Error
Math Computation									
Degrees of Freedom	1	3	3	183	1	1	3	3	183
Mean Square	10.15	3011.43	34.45	40.68	1993.16	19.78	7.29	1.58	8.35
F	.25	74.03	.85		238.70	2.37	.87	.19	
P	.618	<.001	.470		<.001	.125	.456	.90	
Math Concepts									
Degrees of Freedom	1	3	3	183	1	1	3	3	183
Mean Square	1.76	3472.88	17.14	36.89	1856.38	14.35	23.86	9.77	11.47
F	.05	94.14	.46		161.87	1.25	2.08	.85	
P	.827	<.001	.707		<.001	.265	.104	.467	
Math Problem Solving									
Degrees of Freedom	1	3	3	183	1	1	3	3	183
Mean Square	39.80	2916.87	59.62	33.55	921.97	.14	13.60	16.06	7.77
F	1.19	86.93	1.78		118.72	.02	1.75	2.07	
P	.278	<.001	.153		<.001	.894	.158	.106	
Math Total									
Degrees of Freedom	1	3	3	183	1	1	3	3	183
Mean Square	19.79	28146.19	255.57	272.10	13946.30	74.06	88.96	33.96	37.54
F	.07	103.44	.94		371.47	1.97	2.37	.90	
P	.788	<.001	.423		<.001	.162	.072	.44	

Table 3.28. Mean Mental Ability and Mean Educational Achievement for Longitudinal Cohort 2: Steuben Middle School

1978-1979	Mental Ability			Word Knowledge		Reading		Reading Total		Language	
Grade 7	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	247	41.04	15.12	21.72	8.83	17.64	7.91	39.36	15.93	41.35	15.63
Male	106	40.65	16.76	22.19	9.29	18.00	8.48	40.19	16.97	40.12	15.83
Female	141	41.34	13.81	21.37	8.49	17.37	7.47	38.74	15.14	42.28	15.46
1st Quarter											
Total	66	21.85	7.16	14.60	4.47	11.29	4.52	25.89	7.96	27.31	8.38
Male	30	20.53	7.62	14.60	5.03	11.37	5.46	25.97	9.43	26.67	8.14
Female	32	23.09	6.57	14.59	3.97	11.22	3.52	25.81	6.43	27.91	8.68
2nd Quarter											
Total	62	35.60	3.11	18.10	5.33	15.02	4.89	33.11	8.77	36.03	11.45
Male	24	35.38	3.37	18.92	5.27	15.29	5.39	34.21	8.76	35.54	11.17
Female	38	35.74	2.97	17.58	3.38	14.84	4.62	32.42	8.82	36.34	11.76
3rd Quarter											
Total	61	46.44	3.15	22.97	6.48	18.43	6.65	41.39	12.02	44.98	11.14
Male	23	46.26	2.85	22.17	7.00	18.52	7.20	40.70	13.25	41.78	10.61
Female	38	46.55	3.36	23.45	6.19	18.37	6.39	41.82	11.37	46.92	11.13
4th Quarter											
Total	62	60.37	6.17	31.24	8.15	25.84	6.88	57.08	13.94	57.15	12.87
Male	29	61.38	7.02	32.76	7.06	26.69	6.50	59.45	12.47	56.52	13.72
Female	33	59.48	5.26	29.91	8.88	25.09	7.21	55.00	14.99	57.70	12.26

Table 3.28. (Continued):

1978-1979 Grade 7	Spelling		Math Computation		Math Concepts		Math Problem Solving		Math Total	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	27.43	7.24	21.12	6.51	18.90	7.09	15.49	6.18	55.51	18.20
Male	26.69	7.26	20.85	6.80	19.65	7.09	16.18	6.33	56.68	18.65
Female	27.99	7.20	21.32	6.30	18.33	7.07	14.98	6.03	54.63	17.88
1st Quarter										
Total	22.42	6.26	15.98	4.13	13.44	4.88	10.69	3.41	40.11	9.69
Male	22.47	6.11	15.17	4.08	14.43	5.37	11.63	3.63	41.23	10.79
Female	22.38	6.50	16.75	4.10	12.50	4.26	9.81	2.98	39.06	8.57
2nd Quarter										
Total	26.52	6.08	19.42	4.93	16.11	4.33	13.48	4.16	49.02	10.73
Male	26.17	6.37	19.25	4.53	18.08	3.90	13.92	3.89	51.25	9.52
Female	26.74	5.97	19.53	5.23	14.87	4.16	13.21	4.35	47.61	11.32
3rd Quarter										
Total	28.11	6.01	21.98	5.09	19.89	5.05	15.98	4.94	57.85	13.14
Male	26.52	6.84	22.30	5.41	19.48	4.80	16.65	5.06	58.43	13.07
Female	29.08	5.32	21.79	4.95	20.13	5.24	15.58	4.90	57.50	13.34
4th Quarter										
Total	32.69	6.68	27.10	6.10	26.18	6.49	21.82	5.70	75.10	16.68
Male	31.62	6.66	26.90	6.32	26.48	6.96	22.38	6.13	75.76	17.72
Female	33.64	6.66	27.27	5.99	25.91	6.15	21.33	5.34	74.52	15.97

Table 3.28. (Continued):

1979-1980	Word Knowledge		Reading		Reading Total		Language	
Grade 8	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	26.18	9.67	22.25	9.09	48.43	17.89	46.13	16.56
Male	26.92	9.88	22.49	9.26	49.41	18.19	44.33	16.74
Female	25.63	9.51	22.07	8.98	47.70	17.69	47.49	16.35
1st Quarter								
Total	17.58	5.80	14.65	5 37	32.23	9.68	32.15	11.22
Male	18.37	6.01	15.07	5.81	33.43	10.26	30.63	10.42
Female	16.84	5.59	14.25	4.99	31.09	9.11	33.56	11.92
2nd Quarter								
Total	22.82	6.82	19.10	6.23	41.92	11.92	40.63	11.36
Male	23.71	7.94	19.67	6.50	43.38	13.27	41.04	11.40
Female	22.26	6.05	18.74	6.11	41.00	11.07	40.37	11.49
3rd Quarter								
Total	28.00	6.59	23.57	7.25	51.57	12.09	48.52	1?.54
Male	27.78	6.68	22.87	7.72	50.65	12.35	44.04	13.66
Female	28.13	6.63	24.00	7.02	52.13	12.06	51.24	11.13
4th Quarter								
Total	36.35	7.69	31.71	7.22	68.06	14.13	63.27	12.72
Male	37.72	5.73	32.21	6.43	69.93	11.17	61.45	13.10
Female	35.15	8.99	31.27	7.92	66.42	16.30	64.88	12.36

Table 3.28. (Continued):

1979-1980	Spelling		Math Computation		Math Concepts		Math Problem Solving		Math Total	
Grade 8	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	29.66	7.09	24.32	7.26	22.30	7.22	18.29	6.98	64.90	20.00
Male	28.54	7.69	24.16	7.35	22.26	7.62	18.85	7.45	65.27	21.07
Female	30.50	6.51	24.43	7.23	22.32	6.94	17.87	6.61	64.62	19.23
1st Quarter										
Total	24.87	5.58	17.95	5.46	16.58	5.08	13.45	4.96	47.98	12.66
Male	23.63	6.01	17.70	5.48	16.27	5.92	13.97	5.28	47.93	14.62
Female	26.03	4.95	18.19	5.52	16.88	4.23	12.97	4.67	48.03	10.76
2nd Quarter										
Total	28.50	5.46	22.53	5.82	19.34	4.95	15.76	5.18	57.63	13.85
Male	27.58	5.90	22.96	5.33	19.56	4.82	16.21	5.45	59.13	13.32
Female	29.08	5.15	22.26	6.17	18.95	5.05	15.47	5.05	56.68	14.27
3rd Quarter										
Total	30.07	6.33	25.95	4.73	24.03	5.41	19.33	4.84	69.31	13.31
Male	28.09	7.73	25.96	4.98	22.96	5.51	19.83	5.60	68.74	14.95
Female	31.26	5.05	25.95	4.65	24.68	5.32	19.03	4.38	69.66	12.40
4th Quarter										
Total	35.21	6.81	30.85	6.04	29.26	6.07	24.63	7.07	84.74	17.96
Male	34.76	6.45	30.41	6.28	29.83	5.96	25.31	7.39	85.55	18.22
Female	35.61	7.19	31.24	5.90	28.76	6.21	24.03	6.83	84.03	17.98

Table 3.29. Tests of Significance (Repeated Measures ANOVA) of Differences in Educational Achievement for Longitudinal Cohort 2: Steuben Middle School

Source	Sex(S)	Quarter(Q)	S X Q	Error	Gain(G)	G X S	G X Q	G X S X Q	Error
Word Knowledge									
Degrees of Freedom	1	3	3	239	1	1	3	3	239
Mean Square	123.16	7121.09	63.46	72.36	2424.75	9.66	31.26	4.98	12.47
F	1.70	98.41	.88		194.46	.77	2.51	.40	
P	.193	<.001	.454		<.001	.380	.060	.753	
Reading									
Degrees of Freedom	1	3	3	239	1	1	3	3	239
Mean Square	28.46	5591.64	15.74	66.28	2518.07	1.20	35.35	6.44	11.57
F	.43	84.36	.24		217.55	.10	3.05	.56	
P	.513	<.001	.870		<.001	.748	.029	.644	
Reading Total									
Degrees of Freedom	1	3	3	239	1	1	3	3	239
Mean Square	270.03	25328.77	141.93	237.82	9884.75	4.06	122.77	14.32	28.40
F	1.14	106.50	.60		348.01	.14	4.32	.50	
P	.228	<.001	.618		<.001	.706	.005	.680	
Language									
Degrees of Freedom	1	3	3	239	1	1	3	3	239
Mean Square	844.21	20551.79	188.17	223.98	2679.98	38.27	38.01	22.70	40.37
F	3.77	91.76	.84		66.37	.95	.94	.56	
P	.053	<.001	.473		<.001	.331	.421	.640	
Spelling									
Degrees of Freedom	1	3	3	239	1	1	3	3	239
Mean Square	314.78	2232.62	20.83	63.07	569.18	15.37	3.76	17.38	12.49
F	4.99	35.40	.33		45.58	1.23	.30	1.39	
P	.026	<.001	.803		<.001	.268	.824	.246	

Table 3.29. (Continued):

Source	Sex(S)	Quarter(Q)	S X Q	Error	Gain(G)	G X S	G X Q	G X S X Q	Error
Math Computation									
Degrees of Freedom	1	3	3	239	1	1	3	3	239
Mean Square	10.19	3153.70	12.08	48.25	1237.45	2.30	23.02	5.74	9.23
F	.21	65.35	.25		134.12	.25	2.50	.62	
P	.646	<.001	.861		<.001	.618	.061	.601	
Math Concepts									
Degrees of Freedom	1	3	3	239	1	1	3	3	239
Mean Square	43.37	3715.49	53.60	47.12	1303.12	53.04	6.73	14.40	9.22
F	.92	78.84	1.14		141.28	5.75	.73	1.56	
P	.338	<.001	.335		<.001	.017	.535	.200	
Math Problem Solving									
Degrees of Freedom	1	3	3	239	1	1	3	3	239
Mean Square	133.91	2837.62	2.65	41.16	930.22	1.30	5.19	1.63	11.77
F	3.25	68.94	.06		79.05	.11	.44	.14	
P	.073	<.001	.979		<.001	.740	.724	.937	
Math Total									
Degrees of Freedom	1	3	3	239	1	1	3	3	239
Mean Square	223.98	28936.77	46.31	341.35	10358.29	47.70	65.70	9.56	41.17
F	.66	84.77	.14		251.62	1.16	1.60	.23	
P	.419	<.001	.939		<.001	.283	.191	.874	

Table 3.30. Mean Mental Ability and Mean Educational Achievement for Longitudinal Cohort 3: Steuben Middle School

1979-1980	Mental Ability			Word Knowledge		Reading		Reading Total		Language	
Grade 7	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	216	41.63	13.84	23.69	8.82	19.45	8.60	43.14	16.70	42.75	15.15
Male	96	41.63	13.85	24.52	8.45	19.70	8.70	44.22	16.43	42.22	14.05
Female	120	41.64	13.89	23.03	9.08	19.25	8.55	42.28	16.94	43.17	16.02
1st Quarter											
Total	54	24.04	5.88	15.43	5.50	12.09	5.46	27.52	9.51	30.48	11.91
Male	26	24.85	5.60	16.85	5.13	12.08	5.35	28.92	8.96	33.71	12.03
Female	28	23.29	6.13	14.11	5.60	12.11	5.65	26.21	9.97	27.86	11.40
2nd Quarter											
Total	54	36.52	2.85	21.31	5.75	16.91	5.89	38.22	10.66	38.15	9.25
Male	22	36.55	2.86	22.82	5.49	18.05	6.34	40.86	10.58	37.23	7.28
Female	32	36.50	2.90	20.28	5.77	16.13	5.52	36.41	10.48	38.78	10.45
3rd Quarter											
Total	54	46.09	3.61	25.35	6.76	20.93	6.43	46.28	12.33	45.28	11.93
Male	24	45.96	3.52	26.79	6.78	21.17	5.78	47.96	11.49	44.75	12.48
Female	30	46.20	3.74	24.20	6.72	20.73	7.00	44.93	13.00	47.70	11.68
4th Quarter											
Total	54	59.89	4.35	32.69	6.76	27.87	7.61	60.56	13.53	57.07	13.07
Male	24	60.13	4.27	32.13	7.68	28.00	8.28	60.13	15.46	53.92	13.80
Female	30	59.70	4.48	33.13	6.03	27.77	7.17	60.90	12.04	59.60	12.09

Table 3.30. (Continued):

1979-1980 Grade 7	Spelling		Math Computation		Math Concepts		Math Problem Solving		Math Total	
	X	SD	X	SD	X	SD	X	SD	X	SD
Total	26.80	7.14	23.45	6.26	21.24	6.39	16.36	5.92	61.05	16.54
Male	25.54	6.88	23.73	6.34	21.80	6.50	16.81	5.96	62.34	16.59
Female	27.81	7.21	23.23	6.22	20.78	6.29	16.00	5.89	60.02	16.53
1st Quarter										
Total	22.30	7.61	20.02	5.14	17.65	6.53	11.94	3.83	49.61	13.13
Male	21.85	7.75	22.00	3.39	19.77	7.16	12.08	4.17	53.85	14.62
Female	22.71	7.60	18.18	4.21	15.68	5.29	11.82	3.56	45.68	10.36
2nd Quarter										
Total	25.35	5.38	21.65	5.26	19.41	4.20	14.56	3.64	55.61	10.16
Male	23.32	4.38	21.68	6.55	19.45	4.40	15.68	3.21	56.82	12.11
Female	26.75	5.63	21.63	4.28	19.38	4.13	13.78	3.77	54.78	8.69
3rd Quarter										
Total	27.98	6.69	23.91	5.56	21.56	5.52	16.94	4.65	62.41	13.06
Male	26.54	5.98	23.42	5.19	21.46	6.10	17.75	4.58	62.63	13.07
Female	29.13	7.09	24.30	5.89	21.63	5.11	16.30	4.68	62.23	13.26
4th Quarter										
Total	31.57	5.25	28.24	5.94	26.33	5.64	22.00	6.06	76.57	15.98
Male	30.58	5.41	27.79	6.59	26.56	5.57	22.04	6.44	76.33	16.87
Female	32.67	5.07	28.60	5.45	26.20	5.78	21.97	5.84	76.77	15.52

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Table 3.30. (Continued):

1980-1981	Word Knowledge		Reading		Reading Total		Language	
Grade 8	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	29.32	9.79	23.00	8.71	52.32	17.31	48.12	14.65
Male	30.25	9.46	22.93	8.94	53.18	17.20	47.49	13.62
Female	28.58	10.01	23.07	8.56	51.64	17.45	48.63	15.46
1st Quarter								
Total	20.65	8.43	15.02	5.80	35.67	12.77	36.06	11.81
Male	22.08	8.54	14.73	4.79	36.81	12.50	38.92	11.93
Female	19.32	8.27	15.29	6.68	34.61	13.15	33.39	11.25
2nd Quarter								
Total	26.37	7.36	20.80	7.11	47.17	12.43	43.94	10.27
Male	30.23	7.47	22.36	8.38	52.59	13.57	42.32	10.71
Female	23.72	6.09	19.72	5.99	43.44	10.21	45.06	9.98
3rd Quarter								
Total	31.94	7.39	25.44	7.10	57.39	12.85	50.56	10.76
Male	30.83	7.91	24.13	7.82	54.96	14.04	50.08	11.15
Female	32.83	6.96	26.50	6.42	59.33	11.69	50.93	10.61
4th Quarter								
Total	38.31	5.79	30.76	6.00	69.07	10.56	61.93	11.99
Male	38.54	5.42	31.13	5.64	69.67	9.82	58.92	11.42
Female	38.13	6.16	30.47	6.35	68.60	11.25	64.33	12.07

Table 3.30. (Continued):

1980-1981 Grade 8	Spelling		Math Computation		Math Concepts		Math Problem Solving		Math Total	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	30.69	6.87	25.56	6.54	23.13	6.78	19.30	6.37	67.99	18.04
Male	30.22	6.24	26.13	6.56	23.73	7.02	20.01	6.48	69.86	18.35
Female	31.06	6.35	25.11	6.52	22.64	6.57	18.73	6.25	66.48	17.72
1st Quarter										
Total	27.46	7.81	22.56	6.52	18.54	6.42	14.74	4.83	55.83	15.71
Male	29.12	7.61	25.00	6.99	20.38	6.71	15.73	5.68	61.12	17.63
Female	25.93	8.82	20.29	5.21	16.82	5.72	13.82	3.74	50.93	12.04
2nd Quarter										
Total	29.35	5.26	23.26	4.71	20.98	4.90	16.81	4.10	61.06	12.04
Male	28.18	4.94	22.95	4.90	21.41	5.72	17.68	4.70	62.05	13.85
Female	30.16	5.39	23.47	4.64	20.69	4.32	16.22	3.58	60.38	10.80
3rd Quarter										
Total	31.17	6.90	25.48	6.28	24.30	6.11	20.35	5.40	70.13	15.53
Male	30.13	6.43	25.29	6.62	24.21	7.04	20.75	4.99	70.25	16.69
Female	32.00	7.25	25.63	6.12	24.37	5.39	20.03	5.77	70.03	14.82
4th Quarter										
Total	34.76	5.08	30.94	5.02	28.69	4.99	25.30	5.49	84.93	13.80
Male	33.76	4.28	31.08	4.63	29.00	5.29	26.04	5.39	86.13	13.36
Female	35.87	5.45	30.83	5.38	28.43	4.81	24.70	5.58	83.97	14.30

Table 3.31. Tests of Significance (Repeated Measures ANOVA) of Differences in Educational Achievement for Longitudinal Cohort 3: Steuben Middle School

Source	Sex(S)	Quarter(Q)	S X Q	Error	Gain(G)	G X S	G X Q	G X S X Q	Error
Word Knowledge									
Degrees of Freedom	1	3	3	208	1	1	3	3	208
Mean Square	350.92	5752.31	131.81	70.23	3422.69	1.10	6.30	85.29	18.81
F	5.00	81.90	1.88		181.93	.06	.33	4.53	
P	.026	<.001	.135		<.001	.809	.800	.004	
Reading									
Degrees of Freedom	1	3	3	208	1	1	3	3	208
Mean Square	14.27	4750.30	51.76	67.07	1330.38	1330.38	14.51	16.98	17.03
F	.21	70.82	.77		78.11	78.11	.85	1.00	
P	.645	<.001	.511		<.001	<.001	.467	.395	
Reading Total									
Degrees of Freedom	1	3	3	208	1	1	3	3	208
Mean Square	506.70	20957.12	295.84	234.63	9020.85	3.12	33.38	176.50	44.93
F	2.16	89.32	1.26		200.76	.07	.74	3.93	
P	.143	<.001	.289		<.001	.792	.528	.009	
Language									
Degrees of Freedom	1	3	3	208	1	1	3	3	208
Mean Square	64.24	12901.45	572.01	219.45	3047.44	.92	3.55	2.99	38.23
F	.29	58.79	2.61		79.72	.02	.09	.08	
P	.589	<.001	.053		<.001	.877	.964	.972	
Spelling									
Degrees of Freedom	1	3	3	208	1	1	3	3	208
Mean Square	232.54	1298.97	84.49	64.05	1648.39	50.65	25.71	26.76	14.86
F	3.63	20.28	1.32		110.94	3.41	1.73	1.80	
P	.058	<.001	.269		<.001	.066	.162	.148	

Table 3.31. (Continued)

Source	Sex(S)	Quarter(Q)	S X Q	Error	Gain(G)	G X S	G X Q	G X S X Q	Error
Math Computation									
Degrees of Freedom	1	3	3	208	1	1	3	3	208
Mean Square	65.85	1419.10	145.37	50.82	477.83	6.14	10.47	3.53	10.28
F	1.30	27.92	2.86		46.50	.60	1.02	.34	
P	.256	<.001	.038		<.001	.440	.385	.794	
Math Concepts									
Degrees of Freedom	1	3	3	208	1	1	3	3	208
Mean Square	134.26	1750.08	89.25	51.40	386.06	.26	18.22	1.60	10.34
F	2.61	34.05	1.74		37.32	.03	1.76	.15	
P	.108	<.001	.161		<.001	.873	.156	.927	
Math Problem Solving									
Degrees of Freedom	1	3	3	208	1	1	3	3	208
Mean Square	137.97	2101.71	4.27	37.05	922.26	5.09	7.87	9.56	9.35
F	3.72	56.72	.12		98.59	.54	.84	1.02	
P	.055	<.001	.951		<.001	.462	.473	.384	
Math Total									
Degrees of Freedom	1	3	3	208	1	1	3	3	208
Mean Square	988.96	15649.12	459.39	335.14	5116.23	27.52	51.27	15.08	41.61
F	2.95	46.69	1.37		124.16	.66	1.23	.36	
P	.087	<.001	.253		<.001	.417	.299	.78	

Table 3.32. Adjusted Means in Educational Achievement for Longitudinal Cohort 1, Cohort 2, and Cohort 3: Steuben Middle School

	N	Word Knowledge $\bar{X}$	Reading $\bar{X}$	Reading Total $\bar{X}$	Language $\bar{X}$	Spelling $\bar{X}$
Cohort 1						
Total	191	26.33	21.89	48.22	42.81	27.91
Male	97	27.17	22.21	49.37	41.59	27.28
Female	94	25.47	21.57	47.04	44.06	28.56
Cohort 2						
Total	247	24.49	20.42	44.92	44.63	28.81
Male	106	25.28	20.89	46.17	43.42	27.97
Female	141	23.90	20.07	43.97	45.54	29.44
Cohort 3						
Total	216	26.77	21.46	48.22	45.86	28.87
Male	96	27.65	21.55	49.19	45.29	28.01
Female	120	26.06	21.38	47.44	46.31	29.56

	Math Computation $\bar{X}$	Math Concepts $\bar{X}$	Math Problem Solving $\bar{X}$	Math Total $\bar{X}$
Cohort 1				
Total	20.60	20.19	16.66	57.46
Male	20.55	20.37	17.10	58.02
Female	20.66	20.00	16.21	56.87
Cohort 2				
Total	23.05	20.96	17.23	61.24
Male	22.95	21.45	17.97	62.37
Female	23.12	20.60	16.67	60.39
Cohort 3				
Total	24.67	22.35	17.99	65.01
Male	25.09	22.94	18.58	66.61
Female	24.33	21.88	17.53	63.74

Table 3.33. Tests of Significance (ANCOVA) of Differences in Educational Achievement and Comparison of Gains for Longitudinal Cohort 1, Cohort 2, and Cohort 3: Steuben Middle School

Source	Sex(S)	Year(Y)	S X Y	Covariate	Error	Gain(G)	G X S	G X Y	G X S X Y	Error
Word Knowledge										
Degrees of Freedom	1	2	2	1	647	1	1	2	2	648
Mean Square	774.60	639.35	2.76	65483.84	62.14	7068.01	8.31	74.90	.54	14.33
F	12.47	10.29	.04	1053.83		493.22	.58	5.23	.04	
P	<.001	<.001	.957	<.001		<.001	.447	.006	.963	
Reading										
Degrees of Freedom	1	2	2	1	647	1	1	2	2	648
Mean Square	93.20	227.65	12.80	51327.00	57.99	4318.99	4.12	80.60	3.15	13.63
F	1.61	3.93	.22	885.10		316.89	.30	5.91	.23	
P	.205	.020	.802	<.001		<.001	.583	.003	.79	
Reading Total										
Degrees of Freedom	1	2	2	1	647	1	1	2	2	648
Mean Square	1405.16	1537.75	9.72	232760.60	201.55	22437.20	.73	171.42	5.01	34.54
F	6.97	7.63	.05	1154.25		649.61	.02	4.96	.15	
P	.008	.001	.953	<.001		<.001	.885	.007	.865	
Language										
Degrees of Freedom	1	2	2	1	647	1	1	2	2	648
Mean Square	1122.05	888.16	58.77	176338.72	185.46	11098.01	5.44	234.58	13.71	37.47
F	6.05	4.79	.32	950.84		296.19	.15	6.26	.37	
P	.014	.009	.729	<.001		<.001	.703	.002	.694	
Spelling										
Degrees of Freedom	1	2	2	1	647	1	1	2	2	648
Mean Square	656.85	91.42	2.00	15740.90	59.65	3043.42	5.23	90.47	59.67	13.01
F	11.01	1.53	.03	263.89		233.96	.40	6.95	4.59	
P	.001	.217	.967	<.001		<.001	.526	.001	.011	

Table 3.33. (Continued):

Source	Sex(S)	Year(Y)	S X Y	Covariate	Error	Gain(G)	G X S	G X Y	G X S X Y	Error
Math Computation										
Degrees of Freedom	1	2	2	1	647	1	1	2	2	648
Mean Square	8.39	1697.74	29.20	24587.24	44.12	3516.35	24.92	152.61	3.83	9.30
F	.19	38.48	.66	557.28		377.90	2.68	16.40	.41	
P	.663	<.001	.516	<.001		<.001	.102	<.001	.663	
Math Concepts										
Degrees of Freedom	1	2	2	1	647	1	1	2	2	648
Mean Square	185.43	516.24	12.47	29712.18	41.67	3292.37	2.32	163.61	33.40	10.31
F	4.45	12.39	.30	712.98		319.45	.23	15.88	3.24	
P	.035	<.001	.742	<.001		<.001	.635	<.001	.040	
Math Problem Solving										
Degrees of Freedom	1	2	2	1	647	1	1	2	2	648
Mean Square	373.85	195.84	4.62	25856.37	34.00	2762.19	.49	2.37	3.40	9.79
F	11.00	5.76	.14	760.53		282.22	.05	.24	.35	
P	.001	.003	.873	<.001		<.001	.823	.785	.707	
Math Total										
Degrees of Freedom	1	2	2	1	647	1	1	2	2	648
Mean Square	1285.20	5990.53	74.18	240075.05	286.63	28640.35	17.38	654.99	75.39	40.35
F	4.48	20.90	.26	837.57		709.83	.43	16.23	1.87	
P	.035	<.001	.772	<.001		<.001	.512	<.001	.155	

Table 3.34. Mean Mental Ability and the Mean Educational Achievement for the 1977-78 Grade 8 Students Who Were Not Part of a Longitudinal Cohort: Steuben Middle School

	Mental Ability			Word Knowledge		Reading		Reading Total		Language		Spelling	
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	217	42.56	15.27	26.85	9.47	22.86	9.55	49.71	18.12	45.27	14.98	27.83	7.61
Male	97	43.88	16.50	28.01	10.65	24.28	10.30	52.29	20.11	43.12	15.82	26.45	7.79
Female	120	41.50	14.17	25.92	8.34	21.71	8.77	47.63	16.12	47.01	14.08	28.95	7.30
1st Quarter (Lowest)													
Total	54	23.22	6.63	17.94	5.74	13.50	5.62	31.44	9.51	31.37	9.24	23.43	6.61
Male	22	21.45	7.55	16.86	5.51	12.95	5.43	29.82	9.61	27.32	7.47	20.95	5.19
Female	32	24.44	5.72	18.69	5.86	13.88	5.81	32.56	9.42	34.16	9.40	25.13	7.01
2nd Quarter													
Total	55	36.36	3.54	23.09	7.11	19.44	7.13	42.53	12.99	38.95	10.59	26.07	7.40
Male	20	35.40	3.84	23.95	10.30	19.70	8.61	43.65	17.67	34.85	11.26	24.95	8.88
Female	35	36.91	3.28	22.60	4.52	19.29	6.27	41.89	9.61	41.29	9.58	25.13	6.47
3rd Quarter													
Total	54	48.52	3.45	29.83	6.61	25.96	5.92	55.80	10.97	50.43	9.94	29.56	7.22
Male	26	48.15	3.96	29.50	6.84	26.23	5.49	55.73	10.60	44.73	9.19	26.85	7.24
Female	28	48.86	2.93	30.14	6.50	25.71	6.39	55.86	11.51	55.71	7.44	32.07	6.34
4th Quarter (Highest)													
Total	54	62.26	5.36	36.61	6.00	32.59	6.71	69.20	11.70	60.46	10.73	32.31	6.15
Male	29	62.90	5.36	37.93	6.23	34.28	6.43	72.21	11.54	59.38	11.57	31.31	6.12
Female	25	61.52	5.38	35.08	5.46	30.64	6.62	65.72	11.12	61.72	9.74	33.48	6.10

Table 3.34. (Continued):

	Math Computation		Math Concepts		Math Problem Solving		Math Total	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	21.64	7.48	21.13	7.59	18.29	6.97	61.04	20.61
Male	22.02	8.18	21.29	8.44	19.11	7.53	62.41	22.73
Female	21.33	6.88	21.00	6.85	17.62	6.44	59.93	18.75
1st Quarter (Lowest)								
Total	15.80	4.95	14.85	5.13	12.33	4.28	42.94	12.04
Male	14.91	5.31	14.18	5.65	11.91	4.85	41.00	12.95
Female	16.41	4.68	15.31	4.78	12.63	3.89	44.28	11.39
2nd Quarter								
Total	18.31	5.62	17.71	5.88	14.98	4.86	50.98	14.52
Male	18.05	6.46	16.45	6.54	15.45	4.89	49.90	16.26
Female	18.46	5.17	18.43	5.44	14.71	4.90	51.60	13.65
3rd Quarter								
Total	23.26	5.47	23.94	5.80	20.17	4.76	67.37	13.07
Male	21.69	5.57	22.12	6.02	19.38	4.94	63.19	13.44
Female	24.71	5.05	25.64	5.12	20.89	4.56	71.25	11.64
4th Quarter (Highest)								
Total	29.24	5.78	28.07	5.48	25.72	5.08	83.04	15.08
Male	30.45	5.23	29.28	6.01	26.86	5.13	86.59	15.04
Female	27.84	6.16	26.68	4.53	24.40	4.78	78.92	14.33

Table 3.35. Mean Mental Ability and Mean Educational Achievement for the 1980-81 Grade 7 Students Who Were not Part of a Longitudinal Cohort: Steuben Middle School

	Mental Ability			Word Knowledge		Reading		Reading Total		Language		Spelling	
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	300	43.67	13.60	24.42	8.37	20.61	8.10	45.02	15.57	47.08	15.21	28.22	6.96
Male	140	42.30	12.97	23.84	7.94	19.86	7.35	43.70	14.31	43.95	13.86	27.03	6.78
Female	160	44.88	14.05	24.93	8.72	21.26	8.66	46.18	16.56	49.82	15.83	29.26	6.96
1st Quarter (Lowest)													
Total	75	25.95	5.51	16.89	6.19	14.12	4.84	31.03	10.06	33.16	9.78	23.07	5.21
Male	38	25.92	5.83	17.95	6.79	14.71	5.29	32.66	11.02	32.97	9.73	22.61	5.08
Female	37	25.97	5.23	15.82	5.39	13.51	4.31	29.32	8.80	33.35	9.96	23.54	5.37
2nd Quarter													
Total	75	39.13	2.65	22.05	5.23	17.59	4.36	39.64	8.04	43.49	10.58	26.92	5.61
Male	38	39.42	2.78	22.21	5.66	17.89	4.63	40.11	8.90	42.50	10.70	26.92	5.85
Female	35	38.84	2.51	21.89	4.84	17.27	4.10	39.16	7.14	44.51	10.49	26.92	5.43
3rd Quarter													
Total	75	48.33	3.23	25.99	5.96	21.05	6.10	47.04	10.36	49.16	11.42	30.23	6.39
Male	36	48.47	3.06	25.92	6.76	21.17	6.29	47.08	11.65	46.22	11.69	28.64	6.97
Female	39	48.21	3.42	26.05	5.21	20.95	6.01	47.00	9.16	51.87	10.61	31.69	5.49
4th Quarter (Highest)													
Total	75	61.28	4.86	32.73	6.79	29.67	7.06	62.40	12.97	62.51	11.89	32.67	6.58
Male	28	60.50	3.68	31.36	6.43	27.86	6.92	59.21	12.17	57.89	12.00	31.11	6.56
Female	47	61.74	5.44	33.55	6.93	30.74	7.00	64.30	13.18	65.26	11.05	33.60	6.49

Table 3.35. (Continued):

	Math Computation		Math Concepts		Math Problem Solving		Math Total	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	24.07	6.46	20.69	6.32	17.00	5.68	61.76	16.64
Male	22.90	6.21	19.81	6.17	16.30	5.53	59.01	15.89
Female	25.10	6.51	21.45	6.38	17.60	5.75	64.16	16.97
1st Quarter (Lowest)								
Total	20.16	4.70	16.95	4.73	13.35	3.97	50.45	11.04
Male	19.61	4.29	17.03	4.83	13.61	4.36	50.24	11.06
Female	20.73	5.09	16.86	4.69	13.08	3.58	50.68	11.18
2nd Quarter								
Total	22.47	5.31	18.21	4.77	14.83	4.01	55.51	11.80
Male	21.74	4.72	17.87	4.70	14.05	3.58	53.66	10.46
Female	23.22	5.83	18.57	4.89	15.62	4.32	57.41	12.91
3rd Quarter								
Total	24.39	5.84	20.60	4.67	16.97	4.29	61.96	12.15
Male	23.72	5.74	20.25	5.23	17.11	4.59	61.08	12.14
Female	25.00	5.95	20.92	4.13	16.85	4.05	62.77	12.27
4th Quarter (Highest)								
Total	29.28	6.19	26.99	5.84	22.53	5.72	79.11	15.36
Male	27.89	7.49	25.68	6.78	21.96	5.94	75.54	18.79
Female	30.11	5.17	27.77	5.12	22.87	5.62	81.23	12.65

Table 4.1. Mean Mental Ability and Mean Educational Achievement for Three Successive Grade 6 Classes: Webster Transitional School

	Parts of Speech					Sentences					Language Total					Math				
	N	Mental Ability		Achievement		N	Mental Ability		Achievement		N	Mental Ability		Achievement		N	Mental Ability		Achievement	
		$\bar{X}$	SD	$\bar{X}$	SD		$\bar{X}$	SD	$\bar{X}$	SD		$\bar{X}$	SD	$\bar{X}$	SD		$\bar{X}$	SD	$\bar{X}$	SD
GRADE 6 - FALL																				
Fall, 1977-78																				
Total	188	115.87	13.31	82.20	29.03	165	116.85	13.32	9.62	10.06	167	116.72	13.36	93.25	35.21	193	115.94	13.32	46.82	30.86
Male	94	116.36	13.49	76.44	30.34	81	117.58	13.68	8.68	10.38	81	117.58	13.68	85.83	38.10	96	117.05	13.33	47.42	33.76
Female	94	115.37	13.17	87.96	26.58	84	116.14	13.01	10.52	9.71	86	115.91	13.08	100.23	30.87	97	114.85	13.28	46.24	27.86
Fall, 1978-79																				
Total	182	114.43	11.66	82.80	27.71	182	114.43	11.66	7.41	8.28	182	114.43	11.66	90.21	33.10	178	114.53	11.67	44.80	26.84
Male	87	115.92	11.23	80.11	27.09	87	115.92	11.23	6.38	7.68	87	115.92	11.23	86.49	31.44	83	116.27	11.20	41.27	24.08
Female	95	113.07	11.94	85.25	28.18	95	113.07	11.94	8.36	8.73	95	113.07	11.94	93.61	34.36	95	113.01	11.91	47.88	28.81
Fall, 1979-80																				
Total	180	113.13	11.19	85.74	25.95	180	113.13	11.19	7.09	8.44	180	113.13	11.19	92.34	30.97	183	113.04	11.33	57.48	34.75
Male	73	113.32	10.60	80.79	22.87	73	113.32	10.60	4.62	6.35	73	113.32	10.60	85.41	25.65	76	113.37	10.61	53.47	32.09
Female	107	113.00	11.63	89.12	27.45	107	113.00	11.63	8.79	9.26	107	113.00	11.63	97.91	33.30	107	112.80	11.85	60.32	36.39

	Vocabulary					Comprehension				
	N	Mental Ability		Achievement		N	Mental Ability		Achievement	
		$\bar{X}$	SD	$\bar{X}$	SD		$\bar{X}$	SD	$\bar{X}$	SD
GRADE 6-SPRING										
Spring, 1977-78										
Total	203	115.56	13.33	54.89	8.78	204	115.59	13.31	53.35	8.51
Male	102	116.44	13.45	55.10	8.38	102	116.44	13.45	53.24	9.27
Female	101	114.67	13.22	54.68	9.20	102	114.75	13.17	53.47	7.72
Spring, 1978-79										
Total	203	114.23	11.40	54.70	8.35	202	114.24	11.43	55.55	7.09
Male	97	115.51	11.10	55.26	8.13	97	115.51	11.10	55.12	6.87
Female	106	113.07	11.60	54.20	8.56	105	113.08	11.65	54.03	7.28
Spring, 1979-80										
Total	200	112.66	11.15	54.67	7.77	201	112.66	11.15	53.84	7.12
Male	86	112.77	10.51	54.33	8.04	86	112.77	10.51	54.23	7.17
Female	115	112.57	11.65	54.92	7.59	115	112.57	11.65	53.55	7.09

Table 4.2. Adjusted Means in Educational Achievement for Three Successive Grade 6 Classes: Webster Transitional School

	Parts of Speech		Sentences		Language Total		Math	
	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$
GRADE 6 - FALL								
Fall, 1977-78								
Total	188	80.73	165	9.15	167	90.61	193	44.85
Male	94	74.44	81	8.05	81	82.06	96	43.89
Female	94	87.02	84	10.21	86	98.66	97	45.79
Fall, 1978-79								
Total	182	82.86	182	7.48	182	90.57	178	44.80
Male	87	78.59	87	6.12	87	84.91	83	38.84
Female	95	86.78	95	8.73	95	95.76	95	50.01
Fall, 1979-80								
Total	180	87.21	180	7.45	180	94.92	183	59.56
Male	73	82.06	73	4.94	73	87.24	76	55.10
Female	107	90.73	107	9.17	107	100.15	107	62.73

	Vocabulary		Comprehension	
	N	$\bar{X}$	N	$\bar{X}$
GRADE 6 - SPRING				
Spring, 1977-78				
Total	203	54.27	204	52.79
Male	102	54.10	102	52.34
Female	101	54.46	102	53.24
Spring, 1978-79				
Total	203	54.67	202	54.53
Male	97	54.67	97	54.60
Female	106	54.68	105	54.46
Spring, 1979-80				
Total	200	55.29	200	54.42
Male	86	54.94	86	54.79
Female	114	55.56	114	54.14

Table 4.3. Tests of Significance (ANCOVA) of Differences in Educational Achievement for Three Successive Grade 6 Classes: Webster Transitional School

Source	Class(C)	Sex(S)	C X S	Error
GRADE 6 - FALL				
Parts of Speech				
Degrees of Freedom	2	1	2	543
Mean Square	1472.31	13018.44	268.45	580.10
F	2.54	22.44	.46	
P	.08	<.001	.630	
Sentences				
Degrees of Freedom	2	1	2	520
Mean Square	203.00	1168.92	50.96	70.95
F	2.86	16.48	.718	
P	.058	<.001	.488	
Language Total				
Degrees of Freedom	2	1	2	522
Mean Square	645.51	23497.46	366.27	817.48
F	.79	28.74	.45	
P	.46	<.001	.639	
Math				
Degrees of Freedom	2	1	2	547
Mean Square	12152.66	6474.85	1016.01	672.69
F	18.07	9.63	1.51	
P	<.001	.002	.222	
GRADE 6 - SPRING				
Vocabulary				
Degrees of Freedom	2	1	2	600
Mean Square	50.21	18.54	5.91	41.61
F	1.21	.45	.13	
P	.30	.51	.87	
Comprehension				
Degrees of Freedom	2	1	2	600
Mean Square	197.18	.43	30.16	35.62
F	5.54	.01	.85	
P	.004	.91	.43	

Table 4.4. Mean Mental Ability and Mean Educational Achievement for Three Successive Grade 7 Classes: Webster Transitional School

	Mental Ability			Parts of Speech		Mental Ability			Sentences		Mental Ability			Language Total	
	N	$\bar{X}$	SD	$\bar{X}$	SD	N	$\bar{X}$	SD	$\bar{X}$	SD	N	$\bar{X}$	SD	$\bar{X}$	SD
GRADE 7-FALL 1978-79															
Total	197	115.67	13.14	121.16	31.45	189	116.19	13.13	21.59	15.66	190	116.17	13.10	143.12	44.17
Male	98	116.50	13.28	114.32	35.15	92	117.09	13.37	20.02	15.82	93	117.03	13.31	135.01	48.59
Female	99	115.04	13.03	127.93	25.74	97	115.34	12.90	23.07	15.45	97	115.34	12.90	150.90	38.14
1979-80															
Total	200	114.60	11.43	120.43	30.23	200	114.60	11.43	22.42	16.52	200	114.60	11.43	142.87	43.48
Male	97	116.10	11.10	115.98	31.50	97	116.10	11.10	21.53	16.69	97	116.10	11.10	137.49	44.61
Female	103	113.17	11.70	124.62	28.51	103	113.17	11.70	23.25	16.40	103	113.17	11.70	147.93	41.99
1980-81															
Total	189	112.86	11.10	135.07	27.53	189	112.86	11.10	30.07	18.15	189	112.86	11.10	165.14	43.33
Male	79	113.18	10.32	126.54	25.61	79	113.18	10.32	25.66	15.72	79	113.18	10.32	152.20	38.56
Female	110	112.64	11.67	141.19	27.34	110	112.64	11.67	33.25	19.16	110	112.64	11.67	174.44	44.33

	Mental Ability			Parts of Speech		Mental Ability			Sentences		Mental Ability			Language Total	
	N	$\bar{X}$	SD	$\bar{X}$	SD	N	$\bar{X}$	SD	$\bar{X}$	SD	N	$\bar{X}$	SD	$\bar{X}$	SD
GRADE 7-SPRING 1978-79															
Total	200	115.83	13.12	159.82	29.45	200	115.83	13.12	44.33	19.75	200	115.83	13.12	203.86	47.23
Male	100	116.52	13.26	157.54	31.04	100	116.52	13.26	42.50	20.05	100	116.52	13.26	199.50	49.27
Female	100	115.14	13.00	162.09	27.75	100	115.14	13.00	46.16	19.36	100	115.14	13.00	208.22	44.91
1979-80															
Total	203	114.54	11.41	162.80	25.69	203	114.54	11.41	45.82	18.94	203	114.54	11.41	208.62	42.69
Male	97	116.10	11.00	159.60	26.06	97	116.10	11.00	43.98	19.23	97	116.10	11.00	203.58	43.00
Female	106	113.11	11.64	165.74	25.09	106	113.11	11.64	47.50	18.60	106	113.11	11.64	213.24	42.08
1980-81															
Total	189	112.86	11.10	167.59	25.74	189	112.86	11.10	49.06	18.38	189	112.86	11.10	216.71	42.05
Male	79	113.18	10.32	160.49	23.28	79	113.18	10.32	44.11	17.47	79	113.18	10.32	204.78	39.72
Female	110	112.64	11.67	172.69	24.95	110	112.64	11.67	52.62	18.27	110	112.64	11.67	225.27	41.75

Table 4.4. (Continued):

	Mental Ability			Math	
	N	$\bar{X}$	SD	$\bar{X}$	SD
GRADE 7-FALL					
1978-79					
Total	202	115.81	13.18	104.07	52.36
Male	102	116.76	13.23	102.64	53.46
Female	100	114.84	13.12	105.54	51.44
1979-80					
Total	195	114.73	11.49	116.78	48.05
Male	92	116.22	11.18	115.00	46.01
Female	103	113.40	11.65	118.37	49.98
1980-81					
Total	192	112.83	11.19	122.01	47.45
Male	81	113.40	10.29	118.30	45.08
Female	111	112.42	11.83	124.71	49.13

	Mental Ability			Vocabulary		Comprehension	
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
GRADE 7-SPRING							
1978-79							
Total	215	115.21	13.53	54.69	8.02	55.66	7.68
Male	109	116.31	13.37	55.72	8.20	55.76	8.11
Female	106	114.08	13.66	53.63	7.73	55.55	7.25
1979-80							
Total	206	114.44	11.45	55.69	8.02	56.84	8.00
Male	101	115.68	11.19	55.98	8.52	57.74	8.61
Female	105	113.24	11.62	55.41	7.53	55.96	7.31
1980-81							
Total	190	113.02	11.17	51.95	7.67	58.54	7.52
Male	79	113.44	10.53	51.68	7.05	59.19	7.26
Female	111	112.71	11.64	52.14	8.11	58.08	7.71

Table 4.5. Adjusted Means in Educational Achievement for Three Successive Grade 7 Classes: Webster Transitional School

	Parts of Speech		Sentences		Language Total		Math	
	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$
GRADE 7 - FALL								
1978-79								
Total	197	119.27	189	20.46	190	139.75	202	100.89
Male	98	111.40	92	18.28	93	129.84	102	97.17
Female	99	127.07	97	22.53	97	149.25	100	104.68
1979-80								
Total	200	120.20	200	22.38	200	142.77	195	116.19
Male	97	113.62	97	20.46	97	134.26	92	110.84
Female	103	126.39	103	24.19	103	150.78	103	120.97
1980-81								
Total	189	137.28	189	31.23	189	168.64	192	125.95
Male	79	128.31	79	26.60	79	155.05	81	120.90
Female	110	143.72	110	34.56	110	178.41	111	129.64

	Parts of Speech		Sentences		Language Total		Vocabulary		Comprehension	
	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$
GRADE 7-SPRING										
1978-79										
Total	200	158.07	200	43.32	200	201.10	215	54.25	215	55.21
Male	100	154.92	100	40.99	100	195.36	109	54.77	109	54.80
Female	100	161.21	100	45.65	100	206.83	106	53.72	106	55.64
1979-80										
Total	203	162.68	203	45.74	203	208.42	206	55.61	206	56.76
Male	97	157.51	97	42.78	97	200.27	101	55.33	101	57.08
Female	106	167.41	106	48.46	106	215.88	105	55.88	105	56.45
1980-81										
Total	189	169.58	189	50.21	189	219.85	190	52.53	190	59.13
Male	79	162.08	79	45.03	79	207.30	79	52.06	79	59.58
Female	110	174.96	110	53.92	110	228.86	111	52.86	111	58.81

Table 4.6. Tests of Significance (ANCOVA) of Differences in Educational Achievement for Three Successive Grade 7 Classes: Webster Transitional School

Source	Class(C)	Sex(S)	C X S	Error
GRADE 7 - FALL				
Parts of Speech				
Degrees of Freedom	2	1	2	579
Mean Square	16770.89	30824.31	126.88	573.13
F	29.26	53.78	.22	
P	<.001	<.001	.801	
Sentences				
Degrees of Freedom	2	1	2	571
Mean Square	5380.62	4012.75	249.55	212.24
F	25.35	18.91	1.18	
P	<.001	<.001	.309	
Language Total				
Degrees of Freedom	2	1	2	572
Mean Square	41125.61	55651.83	560.59	1237.25
F	33.24	44.98	.45	
P	<.001	<.001	.636	
Math				
Degrees of Freedom	2	1	2	582
Mean Square	29228.68	11200.27	84.31	1624.06
F	18.00	6.90	.05	
P	<.001	.009	.949	
GRADE 7 - SPRING				
Parts of Speech				
Degrees of Freedom	2	1	2	585
Mean Square	5211.14	13673.28	523.69	494.10
F	10.55	27.67	1.06	
P	<.001	<.001	.347	
Sentences				
Degrees of Freedom	2	1	2	585
Mean Square	1824.43	5993.22	231.45	282.58
F	6.46	21.21	.82	
P	.002	<.001	.441	
Language Total				
Degrees of Freedom	2	1	2	585
Mean Square	13767.99	38280.76	1229.20	1346.53
F	10.23	28.43	.91	
P	<.001	<.001	.402	
Vocabulary				
Degrees of Freedom	2	1	2	604
Mean Square	480.56	1.56	52.11	31.14
F	15.43	.05	1.67	
P	<.001	.823	.188	
Comprehension				
Degrees of Freedom	2	1	2	604
Mean Square	786.63	5.25	40.85	27.48
F	28.63	.19	1.49	
P	<.001	.662	.227	

Table 4.7. Mean Mental Ability and Mean Educational Achievement for Two Successive Grade 8 Classes: Webster Transitional School

	Mental Ability			Math			Mental Ability			Parts of Speech		Sentences		
	N	$\bar{X}$	SD	$\bar{X}$	SD		N	$\bar{X}$	SD	$\bar{X}$	SD	N	$\bar{X}$	SD
GRADE 8-FALL						**GRADE 8-SPRING**								
1979-80						1979-80								
Total	212	115.52	13.22	160.19	48.10	Total	212	115.29	13.21	168.58	25.95	212	52.15	16.55
Male	107	116.57	13.26	157.89	47.36	Male	107	116.10	13.28	165.85	27.03	107	49.79	17.14
Female	105	114.46	13.15	162.53	48.96	Female	105	114.46	13.15	171.37	24.62	105	54.55	15.65
1980-81						1980-81								
Total	203	114.41	11.45	167.44	43.87	Total	201	114.41	11.31	171.46	22.61	201	54.22	13.29
Male	96	115.78	11.24	166.22	43.38	Male	94	115.84	11.32	167.94	23.24	94	51.86	15.28
Female	107	113.18	11.56	168.54	44.49	Female	107	113.15	11.59	174.56	21.69	107	56.30	15.06

	Language Total			Mental Ability			Math		Mental Ability			Vocabulary		Comprehension		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	$\bar{X}$	SD	N	$\bar{X}$	SD	$\bar{X}$	SD	N	$\bar{X}$	SD
GRADE 8-SPRING																
1979-80																
Total	212	220.31	41.74	213	115.52	13.19	207.72	33.69	215	115.21	13.53	55.52	8.11	215	55.07	8.85
Male	107	214.79	43.91	108	116.55	13.20	206.94	34.82	109	116.31	13.37	55.61	8.23	109	55.70	8.72
Female	105	225.92	38.81	105	114.46	13.15	208.51	32.64	106	114.08	13.66	55.42	8.02	106	54.42	8.97
1980-81																
Total	201	225.79	36.39	202	114.45	11.47	214.18	27.78	201	114.38	11.29	53.65	8.28	201	58.12	7.72
Male	94	220.01	36.92	95	115.88	11.25	214.76	26.40	94	115.85	10.76	54.47	8.26	94	59.01	7.80
Female	107	230.86	35.32	107	113.18	11.56	213.66	29.05	107	113.08	11.63	52.93	8.27	107	57.35	7.60

Table 4.8. Adjusted Means in Educational Achievement for Two Successive Grade 8 Classes: Webster Transitional School

	Math	
	N	$\bar{X}$
GRADE 8 - FALL		
1979-80		
Total	212	159.03
Male	107	154.49
Female	105	163.64
1980-81		
Total	203	168.66
Male	96	164.51
Female	107	172.38

	Parts of Speech		Sentences		Language Total		Math		Vocabulary		Comprehension	
	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$
GRADE 8-SPRING												
1979-80												
Total	212	168.05	212	51.84	212	219.45	213	206.97	215	55.32	215	54.87
Male	107	164.30	107	48.89	107	212.31	108	204.71	109	54.88	109	54.98
Female	105	171.87	105	54.84	105	226.73	105	209.29	106	55.78	106	54.76
1980-81												
Total	201	172.03	201	54.55	201	226.69	202	214.97	201	53.86	201	58.33
Male	94	166.72	94	51.15	94	218.05	95	213.48	94	53.96	94	58.51
Female	107	176.69	107	57.54	107	234.27	107	216.29	107	53.77	107	58.17

Table 4.9. Tests of Significance (ANCOVA) of Differences in Educational Achievement for Two Successive Grade 8 Classes: Webster Transitional School

	Class	Sex	C X S	Error
GRADE 8 - FALL				
Math				
Degrees of Freedom	1	1	1	410
Mean Square	9083.48	7433.79	42.14	1439.52
F	6.31	5.16	.03	
P	.012	.024	.864	
GRADE 8 - SPRING				
Parts of Speech				
Degrees of Freedom	1	1	1	408
Mean Square	1343.75	7860.75	148.76	351.08
F	3.83	22.39	.424	
P	.051	<.001	.515	
Sentences				
Degrees of Freedom	1	1	1	408
Mean Square	630.33	3887.19	4.90	170.07
F	3.71	22.86	.03	
P	.055	<.001	.865	
Language Total				
Degrees of Freedom	1	1	1	408
Mean Square	4538.88	23971.36	83.95	906.01
F	5.01	26.46	.09	
P	.026	<.001	.761	
Math				
Degrees of Freedom	1	1	1	410
Mean Square	6420.30	1403.02	81.28	645.90
F	9.94	2.17	.13	
P	.002	.141	.723	
Vocabulary				
Degrees of Freedom	1	1	1	411
Mean Square	222.97	13.20	30.95	30.00
F	7.43	.44	1.03	
P	.007	.507	.310	
Comprehension				
Degrees of Freedom	1	1	1	411
Mean Square	1245.93	8.02	.44	33.71
F	36.97	.234	.01	
P	<.001	.626	.910	

Table 4.10. Mean Mental Ability and Mean Educational Achievement in Language Arts for Longitudinal Cohort 1: Webster Transitional School

		Mental Ability		Fall, 1977 (Grade 6)						Fall, 1978 (Grade 7)					
				Parts of Speech		Sentences		Language Total		Parts of Speech		Sentences		Language Total	
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	163	116.90	13.39	84.36	28.83	9.60	10.11	93.34	35.42	123.55	31.22	22.08	15.72	145.47	44.20
Male	80	117.61	13.76	78.43	30.88	8.70	10.45	85.93	38.33	116.15	34.68	20.06	15.59	136.19	48.14
Female	83	116.20	13.07	90.08	25.62	10.47	9.76	100.49	30.95	130.67	25.73	24.02	15.68	154.42	38.22
1st Quarter															
Total	40	100.15	6.76	67.50	27.15	6.15	6.88	73.75	30.46	98.20	29.48	12.05	12.48	110.25	38.85
Male	18	99.44	6.65	52.06	25.97	4.33	4.87	56.61	27.01	77.61	18.34	7.11	7.38	84.72	22.95
Female	22	100.73	6.94	80.14	21.25	7.64	7.97	87.77	25.97	115.05	26.10	16.09	14.40	131.14	36.90
2nd Quarter															
Total	41	112.22	2.06	80.93	28.99	7.88	8.66	86.37	36.25	120.07	28.22	20.63	11.67	140.22	36.99
Male	20	112.20	1.91	76.20	31.20	6.25	9.10	77.45	39.31	111.35	27.25	19.10	12.87	130.45	37.58
Female	21	112.24	2.23	85.43	26.69	9.43	8.12	94.86	31.69	128.38	27.18	22.10	10.50	149.52	34.77
3rd Quarter															
Total	40	120.10	3.04	90.00	26.59	8.30	8.37	98.18	31.23	128.95	21.59	22.35	14.70	151.23	33.37
Male	21	120.67	2.63	82.57	24.96	6.90	7.21	89.48	27.86	121.38	22.17	18.67	11.44	140.05	30.21
Female	19	119.47	3.39	98.21	26.54	9.84	9.44	107.79	32.64	137.32	17.97	26.42	17.01	163.58	33.05
4th Quarter															
Total	42	134.36	5.89	98.40	23.85	15.81	12.79	114.21	31.21	145.93	24.98	32.79	16.48	178.67	38.59
Male	21	135.29	6.01	99.00	23.49	16.57	13.74	115.57	34.03	148.52	27.92	33.48	16.83	181.90	42.74
Female	21	133.43	5.76	97.81	24.76	15.05	12.05	112.86	28.89	143.33	22.03	32.10	16.52	175.43	34.70

Table 4.10. (Continued):

	Spring, 1979 (Grade 7)						Spring, 1980 (Grade 8)					
	Parts of Speech		Sentences		Language Total		Parts of Speech		Sentences		Language Total	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	161.61	29.46	44.87	20.12	206.33	47.61	171.39	25.34	53.55	16.61	224.99	40.32
Male	158.79	31.21	43.39	20.34	201.95	49.34	168.11	27.05	51.13	17.22	219.35	42.41
Female	164.33	27.58	46.30	19.93	210.55	45.77	174.54	23.31	55.88	15.75	230.42	37.66
1st Quarter												
Total	137.13	31.49	30.53	19.65	167.65	49.41	148.83	26.04	38.18	15.60	187.03	39.03
Male	128.33	28.82	24.83	14.55	153.17	41.32	136.67	21.68	30.44	10.98	167.17	27.86
Female	144.32	32.38	35.18	22.26	179.50	53.16	158.77	25.47	44.50	16.16	203.27	39.83
2nd Quarter												
Total	162.17	24.35	45.63	17.77	207.66	40.91	168.56	20.19	53.44	14.33	222.20	32.48
Male	154.40	27.81	41.65	19.10	196.05	45.28	163.35	21.88	50.00	13.75	213.75	33.15
Female	169.57	18.24	49.43	15.95	218.71	33.72	173.52	17.52	56.71	14.42	230.24	30.45
3rd Quarter												
Total	168.25	23.46	49.48	19.09	217.28	38.75	175.93	18.38	57.00	13.87	232.93	30.92
Male	169.19	18.86	53.19	17.02	221.52	31.48	176.90	14.63	57.29	12.22	234.19	25.49
Female	167.21	28.19	45.37	20.84	212.58	45.90	174.84	22.18	56.68	15.84	231.53	36.68
4th Quarter												
Total	178.05	21.86	53.40	16.74	231.45	36.70	191.31	15.58	65.00	9.94	256.31	23.56
Male	178.67	25.83	51.14	18.45	229.81	42.83	190.81	16.95	63.76	12.10	254.57	27.11
Female	177.43	17.67	55.67	14.95	233.10	30.34	191.81	14.48	66.24	7.29	258.05	19.91

Table 4.11. Tests of Significance (Repeated Measures ANOVA) of Differences in Educational Achievement in Language Arts for Longitudinal Cohort 1: Webster Transitional School

Source	Sex(S)	Quarter(Q)	S X Q	Error	Gain(G)	G X S	G X Q	G X S X Q	Error
Parts of Speech									
Degrees of Freedom	1	3	3	155	3	3	9	9	465
Mean Square	19676.44	50029.68	5446.36	1513.32	255639.07	787.76	446.11	450.21	249.18
F	13.00	33.06	3.60		1025.93	3.16	1.79	1.81	
P	<.001	<.001	.015		<.001	.024	.068	.065	
Sentences									
Degrees of Freedom	1	3	3	155	3	3	9	9	465
Mean Square	2575.28	11649.10	652.22	445.48	65794.39	98.71	604.91	227.78	112.20
F	5.78	26.15	1.46		586.42	.88	5.39	2.03	
P	.017	<.001	.227		<.001	.451	<.001	.035	
Language Total									
Degrees of Freedom	1	3	3	155	3	3	9	9	465
Mean Square	37596.98	109745.60	9637.21	3242.50	582098.17	713.54	1779.18	959.19	524.17
F	11.60	33.85	2.97		1110.52	1.36	3.39	1.83	
P	.001	<.001	.034		<.001	.254	<.001	.061	

Table 4.12. Mean Mental Ability and Mean Educational Achievement in Reading and Mathematics for Longitudinal Cohort 1: Webster Transitional School

	Mental Ability			Spring, 1978 (Grade 6)				Spring, 1979 (Grade 7)				Spring, 1980 (Grade 8)			
				Vocabulary		Comprehension		Vocabulary		Comprehension		Vocabulary		Comprehension	
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	191	116.01	13.29	55.36	8.48	54.14	7.56	54.81	8.08	55.94	7.53	55.76	8.03	55.36	8.82
Male	95	116.98	13.38	55.59	8.07	54.37	7.68	55.62	8.58	55.81	8.16	55.74	8.31	55.83	8.88
Female	96	115.05	13.19	55.13	8.90	53.91	7.47	54.00	7.52	56.07	6.89	55.79	7.78	54.89	8.78
1st Quarter															
Total	48	99.90	6.27	47.58	6.25	47.15	6.44	48.81	4.32	49.31	6.68	48.50	5.39	47.29	5.15
Male	22	100.18	5.92	47.77	4.89	46.45	6.90	49.27	3.99	47.36	5.92	47.77	4.55	47.36	5.55
Female	26	99.65	6.66	47.42	7.30	47.73	6.10	48.42	4.97	50.96	6.95	49.12	6.37	47.23	4.89
2nd Quarter															
Total	48	111.25	2.10	54.02	7.26	52.65	4.99	52.17	5.92	54.10	5.31	54.10	5.71	53.33	5.85
Male	24	111.38	2.14	54.79	7.16	53.46	5.11	52.96	6.15	53.96	6.20	53.58	6.25	53.67	5.11
Female	24	111.13	2.09	53.25	7.43	51.83	4.84	51.38	5.69	54.25	4.39	54.63	5.18	53.00	6.60
3rd Quarter															
Total	48	119.19	3.09	57.50	6.68	56.92	6.35	55.71	7.31	57.23	5.10	57.40	6.94	56.63	7.47
Male	25	119.88	2.96	56.88	6.73	57.80	6.74	55.28	7.85	57.48	5.31	57.40	7.37	56.80	7.96
Female	23	118.43	3.12	58.17	6.72	55.96	5.89	56.17	6.82	56.96	4.96	57.39	6.37	56.43	7.06
4th Quarter															
Total	47	134.09	5.99	62.47	6.04	59.96	5.56	62.70	7.02	63.28	5.22	63.21	5.84	64.36	6.75
Male	24	134.96	6.08	62.21	6.30	58.96	5.34	64.46	7.53	63.67	5.77	63.46	5.79	64.75	6.65
Female	23	133.17	5.89	62.74	5.88	61.00	5.71	60.87	6.07	62.87	4.67	62.96	6.01	63.96	6.99

Table 4.12. (Continued):

	Fall, 1977 (Grade 6)		Fall, 1978 (Grade 7)		Fall, 1979 (Grade 8)		Spring, 1980 (Grade 8)	
	Math		Math		Math		Math	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	46.79	31.01	105.46	52.81	162.43	47.32	208.68	33.22
Male	47.32	33.92	104.18	54.05	160.01	45.43	207.53	34.00
Female	46.26	28.01	106.73	51.81	164.82	49.24	209.81	32.55
1st Quarter								
Total	27.71	19.07	63.25	38.08	126.79	47.36	180.00	39.27
Male	25.14	19.71	54.55	30.88	117.27	37.01	173.45	41.74
Female	29.88	18.61	70.62	42.45	134.85	54.03	185.54	36.97
2nd Quarter								
Total	40.65	25.11	89.83	39.70	151.83	42.04	205.52	28.58
Male	39.33	28.05	91.46	41.30	152.63	38.24	206.00	23.28
Female	41.96	22.32	88.21	38.86	151.04	46.34	205.04	33.56
3rd Quarter								
Total	49.42	25.05	118.94	44.84	174.42	36.37	219.73	17.83
Male	45.88	24.27	110.88	41.21	169.40	31.69	219.32	16.79
Female	53.26	25.85	127.70	47.85	179.87	40.88	220.17	19.27
4th Quarter								
Total	69.85	36.68	150.77	44.42	197.40	30.98	229.89	19.14
Male	77.13	38.46	155.42	47.71	196.79	36.93	228.00	24.44
Female	62.26	33.89	145.91	41.20	198.04	24.07	231.87	11.56

Table 4.13. Tests of Significance (Repeated Measures ANOVA) of Differences in Educational Achievement in Reading and Mathematics for Longitudinal Cohort 1: Webster Transitional School

Source	Sex(S)	Quarter(Q)	S X Q	Error	Gain(G)	G X S	G X Q	G X S X Q	Error
Vocabulary									
Degrees of Freedom	1	3	3	183	2	2	6	6	366
Mean Square	10.94	5255.38	25.12	87.50	42.24	38.91	29.80	21.22	16.40
F	.13	60.06	.29		2.58	2.37	1.82	1.29	
P	.724	<.001	.834		.077	.094	.094	.259	
Comprehension									
Degrees of Freedom	1	3	3	183	2	2	6	6	366
Mean Square	.21	5401.78	45.24	71.25	160.60	15.46	58.94	25.71	17.88
F	<.01	75.81	.63		8.98	.86	3.30	1.44	
P	.956	<.001	.593		<.001	.422	.004	.199	
Math									
Degrees of Freedom	1	3	3	183	3	3	9	9	549
Mean Square	3009.13	136723.77	3143.91	3264.26	936906.54	410.61	4461.35	503.06	523.66
F	.92	41.89	.96		1789.15	.78	8.52	.96	
P	.338	<.001	.411		<.001	.503	<.001	.472	

Table 4.14. Mean Mental Ability and Mean Educational Achievement for Reading, Language Arts, and Mathematics for Longitudinal Cohort 2: Webster Transitional School

	Mental Ability			Spring, 1979 (Grade 6)				Spring, 1980 (Grade 7)				Spring, 1981 (Grade 8)			
				Vocabulary		Comprehension		Vocabulary		Comprehension		Vocabulary		Comprehension	
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	166	114.31	11.46	55.80	7.43	55.35	6.70	55.65	7.78	56.87	7.55	53.45	8.36	57.87	7.58
Male	76	116.41	10.41	56.32	7.38	56.30	5.91	56.47	8.33	58.18	7.42	54.61	8.30	58.91	7.48
Female	90	112.54	11.81	55.36	7.49	54.54	7.24	54.96	7.26	55.77	7.52	52.47	8.34	56.99	7.60
1st Quarter															
Total	41	100.44	4.98	49.10	5.34	49.63	6.69	49.20	4.09	50.20	4.65	45.78	4.29	51.15	4.63
Male	14	102.29	3.32	49.57	4.42	50.29	6.33	49.43	5.15	52.71	4.73	45.64	5.21	52.79	5.49
Female	27	99.48	5.46	48.85	5.83	49.30	6.97	49.07	3.52	48.89	4.12	45.85	3.84	50.30	3.97
2nd Quarter															
Total	42	110.62	1.94	53.69	6.49	54.55	5.89	53.19	5.53	54.45	4.86	50.00	5.53	56.81	5.96
Male	17	110.59	2.15	51.76	7.00	55.00	4.37	52.59	5.83	53.88	4.11	50.29	3.62	56.76	4.15
Female	25	110.64	1.82	55.00	5.89	54.24	6.81	53.60	5.40	54.84	5.36	49.80	6.60	56.84	7.02
3rd Quarter															
Total	41	116.37	1.96	58.17	5.32	56.49	4.34	56.17	5.21	57.59	6.03	55.27	4.81	58.20	5.51
Male	21	116.24	1.95	58.57	5.81	56.86	4.07	55.86	5.91	57.95	7.30	55.14	5.55	58.19	6.78
Female	20	116.50	2.01	57.75	4.87	56.10	4.68	56.50	4.50	57.20	4.50	55.40	4.03	58.20	3.93
4th Quarter															
Total	42	129.55	6.97	62.12	5.36	60.62	4.58	63.90	7.23	65.12	5.32	62.60	7.09	65.17	6.64
Male	24	128.92	7.33	61.50	5.23	60.25	4.88	63.88	7.63	64.63	5.78	62.42	6.85	64.63	7.25
Female	18	130.39	6.58	62.94	5.58	61.11	4.23	63.94	6.87	65.78	4.72	62.83	7.60	65.89	5.86

Table 4.14. (Continued):

	Fall, 1978 (Grade 6)						Fall, 1979 (Grade 7)					
	Parts of Speech		Sentences		Language Total		Parts of Speech		Sentences		Language Total	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	83.86	26.33	7.51	8.46	91.36	32.03	124.08	27.73	23.69	16.51	147.80	41.32
Male	83.38	25.38	6.45	7.99	89.83	30.40	120.72	29.24	22.96	16.48	143.67	42.70
Female	84.26	27.24	8.40	8.79	92.66	33.47	126.91	26.21	24.30	16.60	151.28	40.02
1st Quarter												
Total	65.49	22.64	4.71	7.21	70.20	26.95	103.73	22.41	12.90	10.45	116.78	28.56
Male	62.21	23.56	2.50	5.11	64.71	24.44	93.14	23.89	14.21	10.54	107.36	30.93
Female	67.19	22.41	5.85	7.94	73.04	28.18	109.22	19.90	12.22	10.53	121.67	26.53
2nd Quarter												
Total	83.10	28.96	6.69	7.47	89.79	33.95	122.21	24.40	20.36	13.50	142.57	34.54
Male	77.18	23.77	6.18	7.55	83.35	28.04	110.12	17.41	14.82	9.54	124.94	22.15
Female	87.12	31.85	7.04	7.55	94.16	37.37	130.44	25.32	24.12	14.64	154.56	36.62
3rd Quarter												
Total	89.12	21.02	7.88	9.72	97.00	28.27	125.85	22.62	26.02	14.63	151.88	35.24
Male	87.48	19.96	5.71	8.01	93.19	26.01	127.33	27.85	26.00	16.66	153.33	42.77
Female	90.85	22.46	10.15	10.99	101.00	30.62	124.30	16.00	26.05	12.59	150.35	26.15
4th Quarter												
Total	97.40	21.59	10.69	8.39	108.10	26.82	144.07	26.05	35.26	18.13	179.31	40.57
Male	96.54	23.44	9.58	8.81	106.13	28.94	138.54	25.76	31.17	18.53	169.67	40.24
Female	98.56	19.46	12.17	7.80	110.72	24.27	151.44	25.28	40.72	16.51	192.17	38.37

Table 4.14. (Continued):

	Spring, 1980 (Grade 7)						Spring, 1981 (Grade 8)					
	Parts of Speech		Sentences		Language Total		Parts of Speech		Sentences		Language Total	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	163.29	25.91	45.86	19.51	209.15	43.54	172.39	22.20	54.75	14.96	227.25	36.69
Male	159.96	26.28	43.49	20.09	203.45	44.33	169.05	22.54	52.17	14.73	221.49	35.64
Female	166.10	25.40	47.87	18.89	213.97	42.52	175.20	21.63	56.92	14.89	232.12	35.19
1st Quarter												
Total	144.98	23.25	31.63	15.99	176.61	37.45	156.85	16.90	43.12	13.29	199.98	27.81
Male	141.43	23.03	32.21	16.43	173.64	37.38	156.07	15.48	39.36	12.31	195.43	25.80
Female	146.81	23.58	31.33	16.06	178.15	38.11	157.26	17.86	45.07	13.58	202.33	28.99
2nd Quarter												
Total	161.64	24.72	44.95	19.49	206.60	41.94	168.26	21.70	55.02	13.46	223.29	33.91
Male	151.82	23.38	35.82	22.09	187.65	43.76	156.06	20.95	49.12	11.71	205.18	30.66
Female	168.32	23.77	51.16	14.99	219.48	36.07	176.56	18.29	59.04	13.30	235.60	30.77
3rd Quarter												
Total	165.71	22.78	48.24	17.32	213.95	37.25	174.20	20.97	56.95	14.40	231.15	34.48
Male	161.19	27.41	44.76	18.86	205.95	42.69	168.67	24.73	53.19	16.80	221.86	40.80
Female	170.45	15.98	51.90	15.14	222.35	29.29	180.00	14.59	60.90	10.38	240.90	23.58
4th Quarter												
Total	180.45	20.28	58.33	15.56	238.79	34.06	189.90	15.10	63.67	11.11	254.05	23.45
Male	175.46	20.22	54.38	16.40	229.83	35.27	186.17	12.31	60.92	9.67	247.92	18.07
Female	187.11	18.89	63.61	12.96	250.72	29.17	194.89	17.29	67.33	12.09	262.22	27.59

Table 4.14. (Continued):

	Fall, 1978 (Grade 6)		Fall, 1979 (Grade 7)		Fall, 1980 (Grade 8)		Spring, 1981 (Grade 8)	
	Math		Math		Math		Math	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	44.48	26.84	119.84	48.77	170.12	43.27	215.08	27.61
Male	41.43	24.61	120.24	46.11	171.49	40.69	216.62	26.11
Female	47.06	28.47	119.51	51.17	168.97	45.54	213.79	28.90
1st Quarter								
Total	27.46	17.00	85.37	37.62	144.49	38.30	198.24	26.12
Male	25.07	13.53	90.21	22.43	155.71	34.84	207.00	24.25
Female	28.70	18.66	82.85	43.67	138.67	39.33	193.70	26.33
2nd Quarter								
Total	42.88	26.28	113.62	44.48	164.45	44.07	214.31	26.83
Male	37.53	24.68	101.76	36.61	157.88	38.49	208.65	23.76
Female	46.52	27.20	121.68	48.15	168.92	47.73	218.16	28.55
3rd Quarter								
Total	47.20	25.53	132.10	43.69	175.93	37.13	216.54	28.98
Male	39.86	20.89	130.48	45.51	170.24	41.65	214.00	32.45
Female	54.90	28.12	133.80	42.82	181.90	31.66	219.20	25.39
4th Quarter								
Total	60.05	27.25	147.76	46.64	195.14	38.12	230.88	17.93
Male	55.13	26.38	141.88	50.30	191.42	38.32	230.17	16.77
Female	66.61	27.74	155.61	41.34	200.11	38.38	231.83	19.82

Table 4.15. Tests of Significance (Repeated Measures ANOVA) of Differences in Educational Achievement for Longitudinal Cohort 2: Webster Transitional School

Source	Sex(S)	Quarter(Q)	S X Q	Error	Gain(G)	G X S	G X Q	G X S X Q	Error
Vocabulary									
Degrees of Freedom	1	3	3	158	2	2	6	6	316
Mean Square	19.88	4768.78	13.72	61.05	270.17	4.83	48.94	14.50	17.42
F	.33	78.11	.22		15.51	.28	2.81	.83	
P	.569	<.001	.879		<.001	.758	.011	.545	
Comprehension									
Degrees of Freedom	1	3	3	158	2	2	6	6	316
Mean Square	22.88	3441.53	63.62	52.30	265.26	1.12	48.29	9.17	19.27
F	.44	65.81	1.22		13.76	.06	2.51	.48	
P	.510	<.001	.305		<.001	.943	.022	.826	
Math									
Degrees of Freedom	1	3	3	158	3	3	9	9	474
Mean Square	4618.80	52818.34	3356.25	3443.67	857135.86	636.40	1854.87	331.83	405.09
F	1.34	15.34	.97		2115.91	1.57	4.58	.82	
P	.249	<.001	.406		<.001	.196	<.001	.599	
Parts of Speech									
Degrees of Freedom	1	3	3	158	3	3	9	9	474
Mean Square	14196.32	36542.76	1059.76	1215.68	262376.60	346.86	306.50	314.68	238.31
F	11.68	30.06	.87		1100.97	1.46	1.29	1.32	
P	.001	<.001	.457		<.001	.226	.242	.223	
Sentences									
Degrees of Freedom	1	3	3	158	3	3	9	9	474
Mean Square	4895.62	10422.80	377.52	412.84	72089.18	232.04	592.44	157.62	98.96
F	11.86	25.25	.91		728.44	2.34	5.99	1.59	
P	.001	<.001	.435		<.001	.072	<.001	.115	
Language Total									
Degrees of Freedom	1	3	3	158	3	3	9	9	474
Mean Square	35595.63	86204.72	2390.41	2785.53	608226.19	929.66	1106.42	623.46	472.22
F	12.78	30.95	.86		1288.01	1.97	2.34	1.32	
P	<.001	<.001	.464		<.001	.118	.014	.224	

Table 4.16. Adjusted Means in Educational Achievement for Longitudinal Cohort 1 and Cohort 2: Webster Transitional School

	Parts of Speech		Sentences	Language Total	Math		Vocabulary	Comprehension
	N	$\bar{X}$	$\bar{X}$	$\bar{X}$	N	$\bar{X}$	$\bar{X}$	$\bar{X}$
Cohort 1	163	133.67	31.75	165.19	191	129.44	54.95	54.81
	80	127.95	29.61	157.22	95	126.65	54.85	54.59
	83	139.18	33.80	172.87	96	132.21	55.05	55.03
Cohort 2	166	137.43	33.72	171.19	166	138.99	55.37	57.08
	76	132.31	30.78	163.14	76	135.35	55.26	57.29
	90	141.76	36.20	177.98	90	142.06	55.47	56.91

Table 4.17. Tests of Significance (ANCOVA) of Differences in Educational Achievement and Comparison of Gains for Longitudinal Cohort 1 and Cohort 2: Webster Transitional School

Source	Sex(S)	Cohort(C)	C X S	Gain(G)	G X S	G X C	G X S X C	Error
Parts of Speech								
Degrees of Freedom	1	1	1	3	3	3	3	975
Mean Square	34629.62	3903.08	254.88	526586.66	369.14	52.13	668.38	248.08
F	26.65	3.00	.20	2122.61	1.49	.21	2.69	
P	<.001	.084	.658	<.001	.216	.889	.045	
Sentences								
Degrees of Freedom	1	1	1	3	3	3	3	975
Mean Square	7483.29	1030.35	122.81	141502.50	128.42	233.50	60.22	116.81
F	18.12	2.50	.30	1211.35	1.10	2.00	.52	
P	<.001	.115	.586	<.001	.348	.113	.672	
Language Total								
Degrees of Freedom	1	1	1	3	3	3	3	975
Mean Square	75294.75	9896.22	53.80	1214153.05	276.17	356.46	994.01	521.18
F	26.29	3.45	.02	2329.60	.53	.68	1.91	
P	<.001	.064	.891	<.001	.662	.562	.127	
Math								
Degrees of Freedom	1	1	1	3	3	3	3	1059
Mean Square	13137.89	30332.55	119.05	1817013.56	97.05	4311.87	846.26	514.16
F	4.34	10.02	.04	3533.96	.19	8.39	1.65	
P	.038	.002	.843	<.001	.904	<.001	.177	
Vocabulary								
Degrees of Freedom	1	1	1	2	2	2	2	706
Mean Square	10.50	45.24	.01	81.52	16.54	255.38	31.38	17.29
F	.16	.69	<.01	4.71	.96	14.77	1.81	
P	.688	.405	.990	.009	.385	<.001	.164	
Comprehension								
Degrees of Freedom	1	1	1	2	2	2	2	706
Mean Square	.206	1390.36	44.94	375.26	3.41	61.71	18.19	19.13
F	<.01	25.87	.84	19.62	.18	3.23	.95	
P	.95	<.001	.361	<.001	.837	.040	.387	

Table 5.1. Mean Mental Ability and Mean Educational Achievement for Three Successive Grade 7 Classes: Carl Sandburg Junior High School

	1977-1978						1978-1979						1979-1980					
	Mental Ability			Achievement			Mental Ability			Achievement			Mental Ability			Achievement		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
Word Knowledge																		
Total	176	105.39	12.61	176	91.10	11.73	151	106.42	12.52	151	90.93	12.20	156	109.22	13.24	156	93.92	11.29
Male	99	105.29	12.76	99	91.42	12.12	79	105.34	13.62	79	89.84	12.47	78	110.21	12.05	78	94.28	11.50
Female	77	105.51	12.51	77	90.68	11.28	72	107.61	11.16	72	92.14	11.87	78	108.24	14.35	78	93.56	11.14
Reading																		
Total	176	105.39	12.61	176	90.52	13.75	151	106.42	12.52	151	90.66	16.47	156	109.22	13.24	156	94.11	14.23
Male	99	105.29	12.76	99	90.26	14.88	79	105.34	13.62	79	90.01	16.31	78	110.21	12.05	78	92.15	14.80
Female	77	105.51	12.51	77	90.84	12.25	72	107.61	11.16	72	91.38	16.73	78	108.24	14.35	78	96.06	13.45
Reading Total																		
Total	176	105.39	12.61	176	91.68	12.96	151	106.42	12.52	151	91.93	14.62	156	109.22	13.24	156	95.23	12.89
Male	99	105.29	12.76	99	91.70	13.52	79	105.34	13.62	79	90.92	14.58	78	110.21	12.05	78	94.41	13.07
Female	77	105.51	12.51	77	91.65	12.30	72	107.61	11.16	72	93.03	14.69	78	108.24	14.35	78	96.05	12.73
Language																		
Total	176	105.39	12.61	176	95.62	13.35	150	106.47	12.55	150	96.35	15.30	155	109.21	13.28	155	101.01	13.25
Male	99	105.29	12.76	99	93.22	13.33	78	105.41	13.70	78	94.00	15.12	78	110.21	12.05	78	98.50	13.85
Female	77	105.51	12.51	77	98.70	12.82	72	107.61	11.16	72	98.89	15.20	77	108.21	14.44	77	103.56	12.18
Spelling																		
Total	172	105.74	12.38	172	94.26	12.55	149	106.40	12.56	149	94.77	14.46	158	109.24	13.17	158	99.87	13.25
Male	96	105.73	12.42	96	92.49	12.74	78	105.35	13.72	78	91.87	14.74	79	110.14	11.98	79	98.67	12.73
Female	76	105.75	12.41	76	96.50	12.01	71	107.56	11.13	71	97.94	13.54	79	108.34	14.28	79	101.06	13.74
Math Computation																		
Total	172	105.74	12.38	172	94.47	12.14	149	106.40	12.56	149	96.25	12.17	158	109.24	13.17	158	101.10	12.13
Male	96	105.73	12.42	96	93.41	12.24	78	105.35	13.72	78	94.85	12.98	79	110.14	11.98	79	99.76	13.53
Female	76	105.75	12.41	76	95.82	11.96	71	107.56	11.13	71	97.79	11.09	79	108.34	14.28	79	102.44	10.45

Table 5.1. (Continued):

	1977-1978						1978-1979						1979-1980					
	Mental Ability			Achievement			Mental Ability			Achievement			Mental Ability			Achievement		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
Math Concepts																		
Total	172	105.74	12.38	172	87.67	11.63	149	106.40	12.56	149	89.97	12.56	158	109.24	13.17	158	92.76	11.79
Male	96	105.73	12.42	96	87.35	12.15	78	105.35	13.72	78	88.38	13.00	79	110.14	11.98	79	92.42	12.86
Female	76	105.75	12.41	76	88.07	11.01	71	107.56	11.13	71	91.72	11.90	79	108.34	14.28	79	93.10	10.69
Math Problem Solving																		
Total	172	105.74	12.38	172	94.54	12.51	149	106.40	12.56	149	95.19	14.00	158	109.24	13.17	158	99.51	12.87
Male	96	105.73	12.42	96	94.20	12.59	78	105.35	13.72	78	93.64	14.69	79	110.14	11.98	79	99.48	13.21
Female	76	105.75	12.41	76	94.97	12.49	71	107.56	11.13	71	96.90	13.09	79	108.34	14.28	79	99.53	12.61
Math Total																		
Total	172	105.74	12.38	172	97.26	11.90	149	106.40	12.56	149	98.83	12.53	158	109.24	13.17	158	103.23	11.87
Male	96	105.73	12.42	96	96.60	12.10	78	105.35	13.72	78	97.28	13.28	79	110.14	11.98	79	102.63	12.89
Female	76	105.75	12.41	76	98.08	11.68	71	107.56	11.13	71	100.52	11.52	79	108.34	14.28	79	103.84	10.80
Science																		
Total	177	105.49	12.52	177	95.75	10.27	151	106.46	12.48	151	95.01	10.90	157	109.32	13.17	157	97.82	10.82
Male	100	105.32	12.61	100	97.25	10.81	80	105.26	13.56	80	95.35	11.48	78	110.32	11.95	78	98.41	12.02
Female	77	105.71	12.48	77	93.79	9.23	71	107.82	11.09	71	94.62	10.26	79	108.34	14.28	79	97.23	9.54
Social Studies																		
Total	178	105.43	12.51	178	93.25	11.16	152	106.36	12.50	152	94.72	12.97	157	109.32	13.17	157	97.23	12.55
Male	100	105.32	12.61	100	93.48	12.02	80	105.26	13.56	80	94.71	14.20	78	110.32	11.95	78	97.37	13.85
Female	78	105.58	12.46	78	92.96	10.03	72	107.58	11.19	72	94.74	11.56	79	108.34	14.28	79	97.09	11.22

Table 5.2. Adjusted Means in Educational Achievement for Three Successive Grade 7 Classes: Carl Sandburg Junior High School

	Word Knowledge		Reading		Reading Total		Language		Spelling		Math Computation	
	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$
1977-78 Total	176	92.16	176	91.88	176	92.96	176	94.76	172	95.11	172	95.31
Male	99	92.55	99	91.71	99	93.06	99	92.44	96	93.34	96	94.25
Female	77	91.66	77	92.10	77	92.84	77	97.75	76	97.34	76	96.64
1978-79 Total	151	91.29	151	91.12	151	92.36	150	94.62	149	95.20	149	96.68
Male	79	90.93	79	91.42	79	92.25	78	93.12	78	92.96	78	95.92
Female	72	91.69	72	90.80	72	92.48	72	96.25	71	97.66	71	97.50
1979-80 Total	156	92.38	156	92.13	156	93.36	155	97.09	158	98.54	158	99.79
Male	78	92.07	78	89.32	78	91.73	78	93.78	79	96.79	79	97.89
Female	78	92.68	78	94.94	78	94.99	77	100.44	79	100.29	79	101.68

	Math Concepts		Math Problem Solving		Math Total		Science		Social Studies	
	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$
1977-78 Total	172	88.58	172	95.56	172	98.22	177	96.70	178	94.37
Male	96	88.27	96	95.22	96	97.57	100	98.31	100	94.68
Female	76	88.97	76	95.98	76	99.03	77	94.61	78	93.97
1978-79 Total	149	90.44	149	95.72	149	99.32	151	95.36	152	95.17
Male	78	89.56	78	94.95	78	98.52	80	96.45	80	95.95
Female	71	91.41	71	96.56	71	100.19	71	94.14	72	94.30
1979-80 Total	158	91.33	158	97.91	158	101.72	157	96.40	157	95.54
Male	79	90.39	79	97.21	79	100.48	78	96.37	78	94.96
Female	79	92.27	79	98.60	79	102.96	79	96.42	79	96.10

Table 5.3. Tests of Significance (ANCOVA) of Differences in Educational Achievement for Three Successive Grade 7 Classes: Carl Sandburg Junior High School

Source	Covariate	Class(C)	Sex(S)	C X S	Residual	Total
Word Knowledge						
Degrees of Freedom	1	2	1	2	476	482
Mean Square	36116.94	47.07	3.09	34.79	62.67	139.17
F	576.35	.75	.05	.56		
P	<.001	.472	.824	.574		
Reading						
Degrees of Freedom	1	2	1	2	476	482
Mean Square	59413.62	44.06	387.31	435.51	94.77	220.99
F	626.96	.47	4.09	4.59		
P	<.001	.628	.044	.011		
Reading Total						
Degrees of Freedom	1	2	1	2	476	482
Mean Square	52910.69	38.00	141.89	141.94	71.50	183.55
F	739.97	.53	1.98	1.99		
P	<.001	.588	.160	.139		
Language						
Degrees of Freedom	1	2	1	2	474	480
Mean Square	50199.00	258.14	3012.58	120.46	83.83	199.69
F	598.82	3.08	35.94	1.43		
P	<.001	.047	<.001	.239		
Spelling						
Degrees of Freedom	1	2	1	2	472	478
Mean Square	29425.41	538.35	1964.08	13.59	113.81	185.14
F	258.56	4.73	17.26	.12		
P	<.001	.009	<.001	.887		

Table 5.3. (Continued):

Source	Covariate	Class(C)	Sex(S)	C X S	Residual	Total
Math Computation						
Degrees of Freedom	1	2	1	2	472	478
Mean Square	28822.50	794.44	795.51	47.80	85.84	154.84
F	335.76	9.26	9.27	.56		
P	<.001	<.001	.002	.573		
Math Concepts						
Degrees of Freedom	1	2	1	2	472	478
Mean Square	34153.26	312.93	259.43	18.74	71.37	147.34
F	478.54	4.39	3.64	.26		
P	<.001	.013	.057	.769		
Math Problem Solving						
Degrees of Freedom	1	2	1	2	472	478
Mean Square	42629.04	261.20	186.30	7.81	82.10	176.02
F	519.23	3.18	2.27	.10		
P	<.001	.042	.133	.909		
Math Total						
Degrees of Freedom	1	2	1	2	472	478
Mean Square	38379.89	487.39	414.36	11.54	64.98	152.10
F	590.63	7.50	6.38	.19		
P	<.001	.001	.012	.837		
Science						
Degrees of Freedom	1	2	1	2	478	484
Mean Square	29840.83	67.20	475.11	146.46	50.65	114.27
F	589.22	1.33	9.38	2.89		
P	<.001	.266	.002	.056		
Social Studies						
Degrees of Freedom	1	2	1	2	480	486
Mean Square	40612.56	62.35	19.61	78.12	65.48	151.01
F	620.23	.95	.30	1.19		
P	<.001	.387	.584	.304		

Table 5.4. Mean Mental Ability and Mean Educational Achievement for Three Successive Grade 8 Classes: Carl Sandburg Junior High School

	1977-1978					1978-1979					1979-1980				
	Mental Ability			Achievement		Mental Ability			Achievement		Mental Ability			Achievement	
	N	$\bar{X}$	SD	$\bar{X}$	SD	N	$\bar{X}$	SD	$\bar{X}$	SD	N	$\bar{X}$	SD	$\bar{X}$	SD
Word Knowledge															
Total	186	105.40	14.39	96.93	12.81	164	106.02	12.01	96.42	13.94	157	105.15	13.30	95.32	13.43
Male	103	105.20	13.46	97.68	12.80	90	105.81	11.89	96.77	12.51	85	103.95	15.15	93.27	13.34
Female	83	105.65	15.55	96.00	12.85	74	106.28	12.24	96.00	15.57	72	106.56	10.65	97.75	13.23
Reading															
Total	187	105.32	14.40	95.55	15.19	164	105.96	12.02	95.99	16.02	157	105.15	13.30	97.03	16.30
Male	104	105.06	13.48	94.39	15.51	91	105.74	11.84	95.73	16.85	85	103.95	15.15	95.35	17.24
Female	83	105.65	15.55	96.99	14.73	73	106.25	12.32	96.32	15.04	72	106.56	10.66	99.01	15.00
Reading Total															
Total	186	105.40	14.39	97.87	14.10	163	106.01	12.04	97.79	15.09	157	105.15	13.30	97.43	15.24
Male	103	105.20	13.46	97.85	14.13	90	105.81	11.89	97.81	14.49	85	103.95	15.15	95.36	15.70
Female	83	105.65	15.55	97.88	14.15	73	106.25	12.32	97.75	15.91	72	106.56	10.65	99.88	14.40
Language															
Total	186	105.40	14.39	100.70	14.47	162	106.01	12.08	99.57	13.55	157	105.15	13.31	99.20	14.38
Male	103	105.20	13.46	99.46	14.32	90	105.81	11.89	97.52	14.80	85	103.95	15.15	96.15	14.78
Female	83	105.65	15.55	102.25	14.59	72	106.25	12.40	102.13	11.40	72	106.56	10.65	102.81	13.09
Spelling															
Total	188	105.31	14.33	99.73	12.64	165	106.21	11.98	98.50	12.55	160	105.10	13.33	98.89	12.77
Male	106	104.84	13.46	96.86	12.66	92	105.75	11.78	96.04	12.14	87	103.80	15.19	95.46	12.62
Female	82	105.93	15.44	103.45	11.68	73	106.78	12.28	101.59	12.45	73	106.64	10.61	102.99	11.78
Math Computation															
Total	188	105.31	14.33	98.63	13.75	165	106.21	11.98	98.62	11.80	160	105.10	13.33	101.46	11.63
Male	106	104.84	13.46	97.90	13.90	92	105.75	11.78	97.12	11.01	87	103.80	15.19	99.97	12.52
Female	82	105.93	15.44	99.59	13.58	73	106.78	12.28	100.51	12.56	73	106.64	10.61	103.25	10.26

Table 5.4. (Continued):

	1977-1978					1978-1979					1979-1980				
	Mental Ability			Achievement		Mental Ability			Achievement		Mental Ability			Achievement	
	N	$\bar{X}$	SD	$\bar{X}$	SD	N	$\bar{X}$	SD	$\bar{X}$	SD	N	$\bar{X}$	SD	$\bar{X}$	SD
Math Concepts															
Total	188	105.31	14.33	91.16	13.12	165	106.21	11.98	90.84	11.77	160	105.10	13.33	93.14	12.16
Male	106	104.84	13.46	90.71	13.64	92	105.75	11.78	90.54	12.33	87	103.80	15.19	92.18	13.14
Female	82	105.93	15.44	91.74	12.46	73	106.78	12.28	91.22	11.10	73	106.64	10.61	94.29	10.86
Math Problem Solving															
Total	188	105.31	14.33	98.96	14.74	165	106.21	11.98	97.11	13.46	160	105.10	13.33	100.09	12.55
Male	106	104.84	13.46	98.59	15.23	92	105.75	11.78	96.67	13.33	87	103.80	15.20	99.20	12.69
Female	82	105.93	15.44	99.44	14.17	73	106.78	12.28	97.66	13.70	73	106.64	10.61	101.15	12.37
Math Total															
Total	188	105.31	14.33	101.52	14.08	165	106.21	11.98	100.61	12.31	160	105.10	13.33	103.68	12.01
Male	106	104.84	13.46	100.85	14.41	92	105.75	11.78	99.73	12.26	87	103.80	15.19	102.40	12.73
Female	82	105.93	15.44	102.39	13.68	73	106.78	12.28	101.73	12.38	73	106.64	10.61	105.19	10.99
Science															
Total	184	105.24	14.42	98.45	11.73	165	106.65	11.11	99.49	12.09	159	105.21	13.31	98.46	11.12
Male	102	104.96	13.50	99.75	12.10	93	105.83	11.74	100.68	13.23	86	103.99	15.18	99.50	12.01
Female	82	105.60	15.58	96.84	11.12	72	107.72	10.21	97.96	10.33	73	106.64	10.61	97.23	9.91
Social Studies															
Total	184	105.24	14.42	99.76	14.07	165	106.65	11.11	97.70	12.50	159	105.21	13.31	97.63	14.63
Male	102	104.96	13.50	100.55	14.37	93	105.83	11.74	97.56	13.40	86	103.99	15.18	96.76	15.38
Female	82	105.60	13.58	98.78	13.76	72	107.72	10.21	97.88	11.32	73	106.64	10.61	98.66	13.73

Table 5.5. Adjusted Means in Educational Achievement for Three Successive Grade 8 Classes: Carl Sandburg Junior High School

	Word Knowledge		Reading		Reading Total		Language		Spelling		Math Computation	
	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$
1977-78 Total	186	97.02	187	95.86	186	97.96	186	100.80	188	99.86	188	98.77
Male	103	97.91	104	94.93	103	98.12	103	99.71	106	97.26	106	98.34
Female	83	95.91	83	97.02	83	97.77	83	102.14	82	103.23	82	99.33
1978-79 Total	164	96.06	164	95.75	163	97.37	162	99.17	165	98.11	165	98.19
Male	90	96.56	91	95.68	90	97.56	90	97.28	92	95.92	92	96.98
Female	74	95.45	73	95.83	73	97.13	72	101.53	73	100.88	73	99.71
1979-80 Total	157	95.60	157	97.49	157	97.75	157	99.51	160	99.14	160	101.74
Male	85	94.41	85	96.84	85	96.69	85	97.43	87	96.45	87	101.08
Female	72	97.00	72	98.26	72	98.99	72	101.96	73	102.35	73	102.53

	Math Concepts		Math Problem Solving		Math Total		Science		Social Studies	
	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$
1977-78 Total	188	91.31	188	99.13	188	101.68	184	98.75	184	100.11
Male	106	91.18	106	99.11	106	101.36	102	100.23	102	101.13
Female	82	91.48	82	99.15	82	102.10	82	96.90	82	98.85
1978-79 Total	165	90.39	165	96.61	165	100.12	165	98.85	165	96.93
Male	92	90.40	92	96.51	92	99.57	93	100.59	93	97.45
Female	73	90.37	73	96.73	73	100.81	72	96.61	72	96.26
1979-80 Total	160	93.44	160	100.41	160	103.99	159	98.78	159	98.01
Male	87	93.36	87	100.48	87	103.67	86	100.63	86	98.11
Female	73	93.53	73	100.33	73	104.38	73	96.60	73	97.90

Table 5.6. Tests of Significance (ANCOVA) of Differences in Educational Achievement for Three Successive Grade 8 Classes: Carl Sandburg Junior High School

Source	Covariate	Class(C)	Sex(S)	C X S	Residual	Total
Word Knowledge						
Degrees of Freedom	1	2	1	2	500	506
Mean Square	46778.03	68.02	3.71	242.89	84.94	178.67
F	550.71	.80	.04	2.86		
P	<.001	.450	.834	.058		
Reading						
Degrees of Freedom	1	2	1	2	501	507
Mean Square	66137.04	153.90	185.41	41.09	118.24	249.34
F	559.36	1.30	1.57	.35		
P	<.001	.273	.211	.707		
Reading Total						
Degrees of Freedom	1	2	1	2	499	505
Mean Square	64397.94	16.95	31.77	96.86	89.60	217.67
F	718.66	.19	.36	1.08		
P	<.001	.828	.552	.340		
Language						
Degrees of Freedom	1	2	1	2	498	504
Mean Square	59487.18	114.10	1729.98	56.11	76.59	199.95
F	776.68	1.49	22.59	.73		
P	<.001	.226	<.001	.481		
Spelling						
Degrees of Freedom	1	2	1	2	506	512
Mean Square	29393.86	147.02	3951.71	13.40	92.41	159.78
F	318.07	1.59	42.76	.15		
P	<.001	.205	<.001	.865		

Table 5.6. (Continued):

Source	Covariate	Class(C)	Sex(S)	C X S	Residual	Total
Math Computation						
Degrees of Freedom	1	2	1	2	506	512
Mean Square	36984.00	567.82	373.82	34.17	82.36	157.36
F	449.08	6.90	4.54	.42		
P	<.001	.001	.034	.661		
Math Concepts						
Degrees of Freedom	1	2	1	2	506	512
Mean Square	41441.29	395.43	2.80	1.14	72.62	154.18
F	570.66	5.45	.04	.02		
P	<.001	.005	.844	.984		
Math Problem Solving						
Degrees of Freedom	1	2	1	2	506	512
Mean Square	49678.85	598.22	.13	1.40	89.89	187.75
F	552.66	6.66	.00	.02		
P	<.001	.001	.970	.985		
Math Total						
Degrees of Freedom	1	2	1	2	506	512
Mean Square	48542.81	598.04	100.48	3.70	70.70	167.39
F	686.59	8.46	1.42	.05		
P	<.001	<.001	.234	.949		
Science						
Degrees of Freedom	1	2	1	2	501	507
Mean Square	37993.42	.10	1779.29	6.71	59.49	135.71
F	638.61	.00	29.91	.11		
P	<.001	.998	<.001	.893		
Social Studies						
Degrees of Freedom	1	2	1	2	501	507
Mean Square	53968.77	434.40	185.70	45.42	82.74	189.80
F	652.29	5.25	2.24	.55		
P	<.001	.006	.135	.578		

Table 5.7. Mean Mental Ability and Mean Educational Achievement for the Grade 8 Class of 1977-78 and the Grade 7 Class of 1979-80 Who Were Not Part of a Longitudinal Cohort: Carl Sandburg Junior High School

	Mental Ability			Word Knowledge		Reading		Reading Total		Language		Spelling	
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Grade 7													
Total	154	109.30	13.28	93.98	11.35	94.13	14.25	95.27	12.94	101.11	13.24	99.84	13.41
Male	77	110.39	12.02	94.38	11.55	92.31	14.83	94.53	13.11	98.66	13.86	98.52	12.85
Female	77	108.21	14.44	93.58	11.21	95.95	13.50	96.01	12.81	103.56	12.18	101.17	13.90
1st Quarter (Lowest)													
Total	39	92.31	9.05	83.36	9.81	80.69	12.40	82.72	10.03	88.74	11.57	91.95	13.69
Male	16	94.06	5.95	84.13	11.56	76.00	14.55	81.06	11.76	83.50	10.92	88.50	11.89
Female	23	91.09	10.65	82.83	8.63	83.96	9.70	83.87	8.73	92.39	10.77	94.35	14.59
2nd Quarter													
Total	38	106.34	2.54	91.00	7.48	91.63	8.72	92.24	7.85	97.45	9.05	96.32	12.46
Male	23	105.91	2.56	90.04	6.24	90.52	9.33	91.04	7.33	95.30	8.87	95.70	12.02
Female	15	107.00	2.45	92.47	9.10	93.33	7.68	94.07	8.53	100.73	8.58	97.27	13.47
3rd Quarter													
Total	38	113.63	2.56	96.84	7.95	96.82	10.30	98.00	9.05	105.84	8.10	101.53	10.81
Male	16	113.63	2.83	96.81	9.40	95.00	10.79	97.00	9.74	102.44	7.92	98.63	9.52
Female	22	113.64	2.42	96.86	6.95	98.14	9.98	98.73	8.68	108.32	7.45	103.64	11.40
4th Quarter (Highest)													
Total	39	124.95	6.39	104.72	7.42	107.38	10.38	108.13	9.25	112.44	10.16	109.54	9.78
Male	22	124.59	6.35	104.59	8.28	104.09	10.67	106.18	10.05	110.45	11.78	108.68	9.34
Female	17	125.41	6.61	104.88	6.39	111.65	8.51	110.65	7.67	115.00	7.12	110.65	10.51

Table 5.7. (Continued):

	Math Computation		Math Concepts		Math Problem Solving		Math Total		Science		Social Studies	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Grade 7												
Total	101.18	12.27	92.82	11.88	99.58	13.01	103.33	11.99	97.74	10.89	97.27	12.63
Male	99.87	13.69	92.66	12.93	99.56	13.35	102.81	13.01	98.43	12.09	97.47	13.91
Female	102.49	10.58	92.97	10.80	99.61	12.75	103.86	10.93	97.05	9.56	97.08	11.30
1st Quarter (Lowest)												
Total	90.49	9.10	81.10	7.97	86.54	9.87	90.97	7.91	86.77	9.20	85.72	9.18
Male	85.50	9.20	77.69	6.63	83.00	8.79	86.88	6.85	84.94	12.27	83.56	11.66
Female	93.96	7.38	83.48	8.08	89.00	10.01	93.83	7.44	88.04	6.26	87.22	6.87
2nd Quarter												
Total	98.13	8.78	90.21	7.95	96.39	9.81	100.21	7.96	96.18	6.98	92.89	8.87
Male	97.48	8.73	89.91	8.70	96.48	9.24	99.91	8.30	95.96	7.44	93.04	9.88
Female	99.13	9.06	90.67	6.89	96.27	10.96	100.67	7.68	96.53	6.45	92.67	7.38
3rd Quarter												
Total	103.53	10.13	95.26	7.27	103.84	8.40	106.45	7.77	99.34	6.12	99.21	6.84
Male	99.63	12.07	93.19	6.50	102.75	7.17	103.88	8.02	100.38	6.73	98.75	7.97
Female	106.36	7.52	96.77	7.56	104.64	9.27	108.32	7.18	98.59	5.68	99.55	6.07
4th Quarter (Highest)												
Total	112.56	9.12	104.69	9.66	111.59	8.43	115.69	7.92	108.67	7.59	111.21	8.78
Male	113.00	9.47	106.05	9.87	112.50	7.85	116.64	7.58	109.41	7.54	111.27	9.29
Female	112.00	8.89	102.94	9.38	110.41	9.23	114.47	8.42	107.71	7.77	111.12	8.34

Table 5.7. (Continued):

	Mental Ability			Word Knowledge		Reading		Reading Total		Language		Spelling	
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Grade 8													
Total	178	105.60	14.46	97.16	12.80	95.98	14.84	98.07	14.17	100.88	14.61	100.37	12.36
Male	98	105.36	13.56	97.94	12.83	94.97	14.88	98.04	14.31	99.65	14.48	97.88	12.33
Female	80	105.89	15.56	96.21	12.78	97.23	14.78	98.11	14.09	102.38	14.71	103.41	11.77
1st Quarter (Lowest)													
Total	44	88.18	10.08	84.18	9.71	81.68	11.16	83.55	9.84	85.25	10.22	89.30	10.66
Male	23	88.61	9.59	85.09	8.98	82.09	11.74	84.35	9.73	84.35	8.17	87.26	10.22
Female	21	87.71	10.80	83.19	10.58	81.24	10.77	82.67	10.12	86.24	12.21	91.52	10.93
2nd Quarter													
Total	45	100.53	1.89	92.98	8.35	89.82	8.84	92.20	7.53	95.49	7.67	96.04	8.83
Male	28	100.64	2.09	93.07	7.83	88.21	9.63	91.50	8.50	94.32	7.73	93.25	7.41
Female	17	100.35	1.54	92.82	9.38	92.47	6.83	93.35	5.62	97.41	7.38	100.65	9.24
3rd Quarter													
Total	44	110.07	2.61	101.66	8.31	100.98	9.84	102.89	9.12	105.75	8.62	104.48	8.60
Male	22	109.77	2.64	102.82	7.74	99.41	10.84	102.77	9.50	103.64	9.38	101.14	9.61
Female	22	110.36	2.61	100.50	8.86	102.55	8.68	103.00	8.94	107.86	7.40	107.82	5.97
4th Quarter (Highest)													
Total	45	123.31	7.80	109.64	7.99	111.24	9.19	113.44	8.00	116.78	8.29	111.49	8.26
Male	25	122.16	6.45	110.92	9.30	110.48	8.99	113.80	8.45	116.20	9.21	109.96	9.00
Female	20	124.75	9.19	108.05	5.82	112.20	9.57	113.00	7.59	117.50	7.14	113.40	6.97

Table 5.7. (Continued):

	Math Computation		Math Concepts		Math Problem Solving		Math Total		Science		Social Studies	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Grade 8												
Total	99.23	13.37	91.71	12.90	99.51	14.45	102.12	13.73	98.75	11.76	100.30	13.88
Male	99.10	13.25	91.66	13.25	99.46	14.79	101.94	13.80	100.13	12.15	101.21	14.22
Female	99.39	13.61	91.76	12.53	99.56	14.11	102.35	13.72	97.05	11.10	99.19	13.46
1st Quarter (Lowest)												
Total	87.32	8.40	79.14	8.04	85.70	11.43	88.70	8.84	87.48	8.73	86.34	9.36
Male	87.13	7.44	78.61	7.37	86.00	12.14	88.52	8.29	89.04	8.29	87.04	7.44
Female	87.52	9.52	79.71	8.87	85.38	10.88	88.90	9.62	85.76	9.07	85.57	11.23
2nd Quarter												
Total	94.87	9.89	86.44	7.98	93.96	9.86	96.51	9.00	96.09	6.65	95.93	7.54
Male	94.00	9.17	86.29	8.93	93.46	10.53	95.89	9.37	97.79	7.09	96.21	8.55
Female	96.29	11.11	86.71	6.35	94.76	8.90	97.53	8.52	93.29	4.83	95.47	5.70
3rd Quarter												
Total	101.68	9.37	95.43	8.32	103.48	9.10	105.80	9.01	100.59	9.25	103.86	11.27
Male	101.50	8.01	95.82	8.55	102.77	8.80	105.50	8.52	100.50	10.90	104.50	11.83
Female	101.86	10.74	95.05	8.26	104.18	9.55	106.09	9.66	100.68	7.51	103.23	10.91
4th Quarter (Highest)												
Total	112.84	10.49	105.62	8.74	114.67	7.83	117.27	7.81	110.62	8.49	114.84	8.08
Male	113.72	10.59	106.04	8.82	115.64	7.65	117.92	7.18	112.64	9.28	116.96	8.47
Female	111.75	10.53	105.10	8.83	113.45	8.08	116.45	8.66	108.10	6.79	112.20	6.88

Table 5.8. Mean Mental Ability and Mean Educational Achievement for Longitudinal Cohort 1: Carl Sandburg Junior High School

	Mental Ability			Word Knowledge				Reading			
				Grade 7		Grade 8		Grade 7		Grade 8	
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	136	107.33	11.14	92.51	11.04	98.00	12.00	91.85	13.73	97.54	14.36
Male	78	106.81	11.94	92.73	11.46	97.65	12.54	91.86	15.19	97.38	15.74
Female	58	108.03	10.01	92.22	10.53	98.47	11.32	91.83	11.61	97.76	12.40
1st Quarter (Lowest)											
Total	34	93.26	7.20	81.50	8.71	85.97	10.51	77.09	9.18	82.21	9.11
Male	22	93.05	7.38	81.77	7.38	85.55	9.59	76.95	7.94	81.59	10.38
Female	12	93.67	7.18	81.00	11.10	86.75	12.44	77.33	11.52	83.33	6.41
2nd Quarter											
Total	34	104.50	2.19	90.50	7.04	95.21	7.52	88.38	8.69	93.29	8.36
Male	21	104.57	2.31	91.38	7.68	96.29	8.58	88.81	10.03	94.48	9.80
Female	13	104.38	2.06	89.08	5.87	93.46	5.25	87.69	6.25	91.38	5.08
3rd Quarter											
Total	34	110.62	2.02	95.12	7.26	100.85	6.16	94.85	6.06	101.09	8.48
Male	15	110.47	2.10	95.33	6.64	99.73	6.71	94.00	6.55	99.93	5.98
Female	19	110.74	2.00	94.95	7.89	101.74	5.70	95.53	5.74	102.00	10.10
4th Quarter (Highest)											
Total	34	120.94	5.72	102.94	8.49	109.97	8.41	107.06	9.51	113.59	8.93
Male	20	121.55	6.70	104.25	9.57	110.85	8.12	109.85	10.80	115.90	9.66
Female	14	120.07	3.99	101.07	6.55	108.71	8.96	103.07	5.46	110.29	6.78

Table 5.8. (Continued):

	Reading Total				Language				Spelling			
	Grade 7		Grade 8		Grade 7		Grade 8		Grade 7		Grade 8	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	93.20	12.51	99.13	13.75	96.76	13.31	100.57	13.76	95.35	12.00	99.01	12.47
Male	93.31	13.26	98.77	14.79	94.31	13.78	98.50	15.17	93.83	12.60	97.09	12.10
Female	93.05	11.55	99.62	12.31	100.07	11.97	103.36	11.12	97.38	10.92	101.60	12.59
1st Quarter (Lowest)												
Total	79.59	9.08	84.44	9.11	81.97	8.99	85.44	9.16	84.76	10.15	88.09	9.01
Male	79.82	7.30	83.86	9.11	79.32	8.69	82.50	8.08	83.32	10.64	86.00	7.21
Female	79.17	12.06	85.50	9.41	86.83	7.64	90.83	8.84	87.42	9.02	91.92	10.94
2nd Quarter												
Total	90.29	5.85	95.06	8.49	93.97	7.42	97.18	7.63	92.21	7.95	96.50	8.58
Male	90.86	6.74	96.19	10.06	93.43	8.66	96.48	8.57	91.67	7.79	96.24	7.85
Female	89.38	4.13	93.23	4.85	94.85	5.03	98.31	5.95	93.08	8.44	96.92	9.98
3rd Quarter												
Total	96.09	6.54	102.47	7.11	101.41	7.91	105.29	8.20	99.59	9.33	103.12	10.74
Male	95.80	6.81	101.07	6.03	98.07	6.12	102.07	6.71	96.33	9.47	99.33	8.51
Female	96.32	6.51	103.58	7.83	104.05	8.30	107.84	8.53	102.16	8.60	106.11	11.58
4th Quarter (Highest)												
Total	106.82	9.03	114.56	8.45	109.71	9.87	114.38	9.88	104.82	9.97	108.35	11.34
Male	108.85	9.73	116.15	8.66	108.90	9.15	115.55	11.52	105.80	9.99	108.50	11.54
Female	103.93	7.28	112.29	7.88	110.86	11.07	112.71	6.99	103.43	10.15	108.14	11.47

Table 5.8. (Continued):

	Math Computation				Math Concepts				Math Problem Solving			
	Grade 7		Grade 8		Grade 7		Grade 8		Grade 7		Grade 8	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	94.99	11.91	98.94	11.48	88.04	11.86	91.43	11.66	94.97	12.25	97.71	13.16
Male	93.76	12.23	98.01	10.78	87.29	12.81	91.31	12.77	94.55	12.78	97.40	13.31
Female	96.64	11.37	100.19	12.33	89.03	10.47	91.59	10.10	95.53	11.59	98.14	13.06
1st Quarter (Lowest)												
Total	84.06	11.71	88.71	9.74	77.18	9.89	81.44	8.86	82.85	9.60	85.50	9.05
Male	83.09	11.78	89.23	8.89	76.50	10.34	80.64	8.97	82.32	9.71	85.00	9.39
Female	85.83	11.90	87.75	11.51	78.42	9.34	82.92	8.85	83.83	9.76	86.42	8.70
2nd Quarter												
Total	92.38	9.19	95.47	8.48	85.15	7.26	87.35	7.06	91.74	8.13	93.38	7.88
Male	91.90	9.20	95.52	8.61	84.76	8.53	87.43	8.26	92.10	8.96	93.62	6.55
Female	93.15	9.49	95.38	8.63	85.77	4.80	87.23	4.85	91.15	6.88	93.00	9.95
3rd Quarter												
Total	100.35	7.21	104.09	8.61	89.94	7.51	94.35	7.56	99.47	8.53	101.35	10.87
Male	98.87	7.61	102.80	9.43	88.47	7.86	94.00	8.44	99.93	8.68	100.27	8.52
Female	101.53	6.85	105.11	8.03	91.11	7.21	94.63	7.02	99.11	8.63	102.21	12.59
4th Quarter (Highest)												
Total	103.15	8.88	107.50	8.63	99.88	9.49	102.56	10.71	105.82	8.87	110.62	9.38
Male	103.60	7.94	106.70	6.84	100.95	9.24	105.10	9.64	106.55	7.96	112.85	8.36
Female	102.50	10.35	108.64	10.88	98.36	9.97	98.93	11.45	104.79	10.26	107.43	10.14

Table 5.8. (Continued):

	Math Total				Science				Social Studies			
	Grade 7		Grade 8		Grade 7		Grade 8		Grade 7		Grade 8	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	97.71	11.92	101.13	12.25	96.82	9.79	100.24	12.05	94.45	10.79	98.45	11.86
Male	96.82	12.54	100.51	12.46	98.32	10.64	101.87	13.67	94.99	11.80	99.01	13.11
Female	98.90	11.01	101.95	12.01	94.79	8.17	98.05	9.10	93.72	9.31	97.69	9.99
1st Quarter (Lowest)												
Total	85.82	9.63	89.18	9.29	88.03	8.69	88.47	8.70	83.38	9.06	86.41	7.76
Male	84.95	9.74	88.73	9.20	88.64	9.43	87.91	9.94	83.59	9.74	85.50	9.00
Female	87.42	9.64	90.00	9.80	86.92	7.39	89.50	6.05	83.00	8.06	88.08	4.64
2nd Quarter												
Total	94.44	7.46	96.97	6.68	93.94	5.94	97.26	7.35	92.26	5.89	95.88	7.58
Male	94.19	8.13	97.05	6.66	96.14	5.55	99.29	7.38	93.33	6.12	97.38	8.15
Female	94.85	6.53	96.85	6.97	90.38	4.86	94.00	6.25	90.54	5.27	93.46	6.09
3rd Quarter												
Total	101.85	7.34	105.47	8.70	98.53	6.13	102.94	9.00	97.29	6.34	100.32	6.51
Male	101.07	7.74	104.27	8.55	100.53	6.24	106.87	8.68	97.20	7.45	101.00	5.72
Female	102.47	7.15	106.42	8.93	96.95	5.70	99.84	8.19	97.37	5.52	99.79	7.18
4th Quarter (Highest)												
Total	108.71	8.93	112.88	8.94	106.76	7.12	112.29	8.60	104.85	8.29	111.18	9.41
Male	109.45	8.14	114.30	7.04	109.60	6.93	116.20	8.13	107.60	7.41	114.10	7.48
Female	107.64	10.18	110.86	11.08	102.71	5.33	106.71	5.84	100.93	8.13	107.00	10.54

Table 5.9. Tests of Significance (Repeated Measures ANOVA) of Differences in Educational Achievement for Longitudinal Cohort 1: Carl Sandburg Junior High School

Source	Sex(S)	Quarter(Q)	S X Q	Error	Gain(G)	G X S	G X Q	G X S X Q	Error
Word Knowledge									
Degrees of Freedom	1	3	3	128	1	1	3	3	128
Mean Square	71.29	5690.78	54.06	116.98	1981.12	24.19	21.18	6.75	16.42
F	.61	48.65	.46		120.65	1.47	1.29	.41	
P	.436	<.001	.709		<.001	.227	.281	.745	
Reading									
Degrees of Freedom	1	3	3	128	1	1	3	3	128
Mean Square	119.96	10172.07	217.39	109.06	2110.53	1.22	12.51	9.49	37.11
F	1.10	93.27	1.99		56.88	.03	.34	.26	
P	.296	<.001	.118		<.001	.857	.799	.857	
Reading Total									
Degrees of Freedom	1	3	3	128	1	1	3	3	128
Mean Square	85.76	8998.68	117.44	113.12	2307.03	15.03	32.79	11.81	16.58
F	.76	79.55	1.04		139.23	.91	1.98	.71	
P	.386	<.001	.378		<.001	.343	.120	.546	
Language									
Degrees of Freedom	1	3	3	128	1	1	3	3	128
Mean Square	909.63	8428.76	236.07	120.66	910.08	14.40	2.96	27.57	21.49
F	7.54	69.85	1.96		42.35	.67	.14	1.28	
P	.007	<.001	.124		<.001	.415	.937	.283	
Spelling									
Degrees of Freedom	1	3	3	128	1	1	3	3	128
Mean Square	488.85	4445.37	205.18	162.59	908.46	16.64	1.69	6.26	22.32
F	3.01	27.34	1.26		40.71	.75	.08	.28	
P	.085	<.001	.290		<.001	.389	.973	.839	

Table 5.9. (Continued):

Source	Sex(S)	Quarter(Q)	S X Q	Error	Gain(G)	G X S	G X Q	G X S X Q	Error
Math Computation									
Degrees of Freedom	1	3	3	128	1	1	3	3	128
Mean Square	67.76	4595.52	15.85	142.30	951.22	8.63	8.06	36.06	28.09
F	.48	32.30	.11		33.86	.31	.29	1.28	
P	.491	<.001	.953		<.001	.580	.835	.283	
Math Concepts									
Degrees of Freedom	1	3	3	128	1	1	3	3	128
Mean Square	.24	5195.92	143.88	126.03	713.15	41.80	26.83	10.79	23.98
F	.00	41.23	1.14		29.74	1.74	1.12	.45	
P	.965	<.001	.335		<.001	.189	.344	.718	
Math Problem Solving									
Degrees of Freedom	1	3	3	128	1	1	3	3	128
Mean Square	22.34	6575.93	78.93	143.32	447.01	.44	28.03	29.11	24.14
F	.16	45.88	.55		18.52	.02	1.16	1.21	
P	.694	<.001	.649		<.001	.892	.327	.310	
Math Total									
Degrees of Freedom	1	3	3	128	1	1	3	3	128
Mean Square	6.33	6204.89	71.97	129.99	706.67	8.72	7.50	4.47	14.66
F	.05	47.73	.55		48.20	.59	.51	.30	
P	.826	<.001	.647		<.001	.442	.675	.822	
Science									
Degrees of Freedom	1	3	3	128	1	1	3	3	128
Mean Square	1473.30	4926.58	183.21	88.31	818.70	5.15	58.83	38.07	19.32
F	16.68	55.79	2.07		42.37	.27	3.04	1.97	
P	<.001	<.001	.107		<.001	.607	.031	.122	
Social Studies									
Degrees of Freedom	1	3	3	128	1	1	3	3	128
Mean Square	386.22	5622.62	194.68	98.05	1085.84	.06	35.61	17.64	16.15
F	3.94	57.34	1.99		67.25	.00	2.21	1.09	
P	.049	<.001	.119		<.001	.952	.091	.355	

Table 5.10. Mean Mental Ability and Mean Educational Achievement for Longitudinal Cohort 2: Carl Sandburg Junior High School

	Mental Ability			Word Knowledge				Reading			
				Grade 7		Grade 8		Grade 7		Grade 8	
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	134	106.40	12.30	90.96	12.04	96.43	12.95	91.00	16.40	97.99	15.78
Male	71	105.65	13.47	89.79	12.16	94.45	12.58	90.72	15.72	96.13	16.53
Female	63	107.25	10.87	92.27	11.86	98.67	13.10	91.32	17.26	100.08	14.75
1st Quarter (Lowest)											
Total	34	91.41	5.62	78.12	8.56	81.68	8.13	73.88	12.51	80.94	10.82
Male	22	90.55	5.94	78.00	8.55	80.73	7.65	75.64	11.04	78.87	9.99
Female	12	93.00	4.81	78.33	8.95	83.42	9.04	70.67	14.81	84.75	11.67
2nd Quarter											
Total	33	102.27	2.11	88.61	6.71	94.00	6.93	87.58	8.75	96.15	10.65
Male	12	102.58	2.50	89.75	8.50	94.42	6.80	91.00	8.45	99.67	11.13
Female	21	102.10	1.89	87.95	5.58	93.76	7.16	85.62	8.49	94.14	10.08
3rd Quarter											
Total	33	109.67	2.89	92.58	7.53	99.94	7.70	94.33	10.16	101.18	10.52
Male	19	108.89	2.66	91.05	8.21	98.00	8.60	92.84	11.36	98.42	10.58
Female	14	110.71	2.95	94.64	6.20	102.57	5.53	96.36	8.24	104.93	9.56
4th Quarter (Highest)											
Total	34	122.24	6.94	104.50	6.75	110.15	8.31	108.21	11.12	113.71	10.11
Male	18	122.72	8.37	102.89	6.12	107.50	5.71	106.72	10.67	112.44	11.00
Female	16	121.69	5.10	106.31	7.15	113.13	9.85	109.88	11.72	115.13	9.14

Table 5.10. (Continued):

	Reading Total				Language				Spelling			
	Grade 7		Grade 8		Grade 7		Grade 8		Grade 7		Grade 8	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	92.11	14.47	98.60	14.77	95.99	14.81	100.25	14.33	94.50	14.02	100.04	12.03
Male	91.24	14.12	96.52	15.07	93.83	13.96	97.42	14.74	91.55	13.81	97.30	11.79
Female	93.10	14.92	100.95	14.19	98.41	15.47	103.43	13.26	97.83	13.61	103.14	11.63
1st Quarter (Lowest)												
Total	76.50	9.67	81.71	9.08	80.62	8.09	84.41	7.87	80.88	13.11	89.86	9.85
Male	77.23	8.99	80.14	8.64	78.95	7.21	82.55	6.48	78.14	11.14	87.27	9.58
Female	75.17	11.10	84.58	9.54	83.67	9.02	87.83	9.28	85.92	15.37	94.58	8.84
2nd Quarter												
Total	89.00	6.69	95.97	8.42	91.97	12.79	97.45	8.25	94.00	9.99	98.79	9.32
Male	91.33	7.77	97.75	9.03	92.92	9.08	96.25	10.02	94.50	5.39	99.67	7.38
Female	87.67	5.77	94.95	8.10	91.43	14.68	98.14	7.24	93.71	11.98	98.29	10.41
3rd Quarter												
Total	94.36	8.54	102.15	9.17	100.39	8.07	103.33	9.12	97.82	10.80	101.82	10.24
Male	92.74	9.28	99.47	9.36	97.05	7.29	98.58	7.12	93.37	10.82	97.53	9.72
Female	96.57	7.15	105.79	7.81	104.93	6.94	109.79	7.53	103.86	7.55	107.64	7.99
4th Quarter (Highest)												
Total	108.56	9.60	114.62	8.29	110.97	9.29	115.79	9.69	105.38	9.28	109.74	9.61
Male	106.72	8.95	112.61	8.04	109.22	8.88	115.17	10.08	104.06	8.99	107.72	8.63
Female	110.63	10.16	116.88	8.23	112.94	9.64	116.50	9.51	106.88	9.67	112.00	10.41

Table 5.10. (Continued):

	Math Computation				Math Concepts				Math Problem Solving			
	Grade 7		Grade 8		Grade 7		Grade 8		Grade 7		Grade 8	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	96.11	11.49	102.16	10.49	90.07	12.15	93.30	11.65	95.01	13.92	100.51	12.42
Male	95.18	12.80	101.07	10.98	89.01	12.74	92.30	12.05	93.61	14.74	99.94	12.52
Female	97.16	9.79	103.38	9.85	91.25	11.43	94.43	11.17	96.60	12.87	101.14	12.37
1st Quarter (Lowest)												
Total	84.44	9.92	92.24	7.35	79.41	8.88	81.29	7.66	80.12	10.13	87.09	8.27
Male	82.95	10.03	91.23	7.35	78.18	9.20	80.59	8.12	78.05	9.29	87.09	8.53
Female	87.17	9.54	94.08	7.29	81.67	8.15	82.58	6.87	83.92	10.90	87.08	8.15
2nd Quarter												
Total	93.27	8.14	99.61	7.92	85.21	7.70	89.82	7.78	91.18	8.00	97.61	7.92
Male	93.08	10.42	100.00	10.94	86.00	9.57	89.08	9.44	92.92	9.50	99.75	8.90
Female	93.38	6.80	99.38	5.87	84.76	6.63	90.24	6.88	90.19	7.07	96.38	7.24
3rd Quarter												
Total	101.97	5.30	106.21	7.23	94.48	8.90	98.36	8.38	100.58	7.59	106.27	8.46
Male	100.53	5.31	103.26	6.44	92.84	9.33	97.37	7.80	97.68	6.15	103.68	7.13
Female	103.93	4.80	110.21	6.44	96.71	8.07	99.71	9.24	104.50	7.79	109.79	9.10
4th Quarter (Highest)												
Total	104.85	8.95	110.62	8.92	101.15	9.76	103.76	7.89	108.24	10.30	111.15	8.88
Male	105.89	10.05	111.50	7.85	100.22	10.24	103.39	7.11	108.78	10.66	111.83	8.43
Female	103.69	7.70	109.63	10.16	102.19	9.40	104.19	8.90	107.63	10.18	110.38	9.58

Table 5.10. (Continued):

	Math Total				Science				Social Studies			
	Grade 7		Grade 8		Grade 7		Grade 8		Grade 7		Grade 8	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	98.77	12.21	104.16	11.40	94.92	10.95	99.22	10.94	94.80	12.91	98.46	14.61
Male	97.62	13.17	103.18	11.74	95.63	11.45	100.46	11.64	94.82	14.29	97.49	15.04
Female	100.06	10.99	105.27	10.99	94.11	10.38	97.81	9.99	94.78	11.27	99.56	14.15
1st Quarter (Lowest)												
Total	85.82	8.06	91.82	6.67	83.91	8.58	88.65	6.72	81.18	5.83	81.94	8.74
Male	84.14	7.91	91.14	6.66	84.45	7.71	89.91	6.71	80.59	5.64	81.77	8.08
Female	88.92	7.72	93.08	6.80	82.92	10.29	86.33	6.36	82.25	6.28	82.25	10.20
2nd Quarter												
Total	94.67	7.04	100.97	7.36	91.85	6.17	94.85	6.46	90.06	5.75	95.18	8.87
Male	95.50	9.53	101.75	9.27	93.92	5.00	97.17	6.34	91.58	5.68	96.42	9.71
Female	94.19	5.35	100.52	6.24	90.67	6.56	93.52	6.30	89.19	5.74	94.48	8.51
3rd Quarter												
Total	104.33	6.76	109.24	7.79	98.15	6.56	102.64	6.53	98.00	8.26	102.09	7.70
Male	102.16	5.95	106.79	7.14	98.11	6.90	102.79	7.60	97.47	9.76	100.58	8.83
Female	107.29	6.87	112.57	7.63	98.21	6.31	102.43	5.00	98.71	5.92	104.14	5.49
4th Quarter (Highest)												
Total	110.29	9.29	114.68	7.82	107.76	8.06	110.71	8.55	109.91	8.98	114.65	8.69
Male	110.72	9.89	115.06	7.10	107.83	8.47	113.11	9.38	111.56	10.30	114.17	9.05
Female	109.81	8.86	114.25	8.77	103.44	7.13	108.00	6.82	108.06	7.08	115.19	8.52

Table 5.11. Tests of Significance (Repeated Measures ANOVA) of Differences in Educational Achievement for Longitudinal Cohort 2: Carl Sandburg Junior High School

Source	Sex(S)	Quarter(Q)	S X Q	Error	Gain(G)	G X S	G X Q	G X S X Q	Error
Word Knowledge									
Degrees of Freedom	1	3	3	126	1	1	3	3	126
Mean Square	314.98	8346.88	111.50	98.50	1980.59	44.48	33.75	2.00	15.40
F	3.20	84.74	1.13		128.64	2.89	2.19	.13	
P	.076	<.001	.339		<.001	.092	.092	.942	
Reading									
Degrees of Freedom	1	3	3	126	1	1	3	3	126
Mean Square	34.30	12493.25	320.18	187.80	3541.83	174.48	36.68	109.17	33.62
F	.18	66.52	1.70		105.34	5.19	1.09	3.25	
P	.670	<.001	.169		<.001	.024	.356	.024	
Reading Total									
Degrees of Freedom	1	3	3	126	1	1	3	3	126
Mean Square	201.90	11705.70	217.70	134.13	2917.94	103.96	12.52	30.63	14.87
F	1.51	87.27	1.62		196.26	6.99	.84	2.06	
P	.222	<.001	.187		<.001	.009	.473	.109	
Language									
Degrees of Freedom	1	3	3	126	1	1	3	3	126
Mean Square	1188.33	10511.59	253.41	133.38	1131.19	23.98	11.18	30.76	27.25
F	8.91	78.81	1.90		41.51	.88	.41	1.13	
P	.003	<.001	.133		<.001	.350	.746	.340	
Spelling									
Degrees of Freedom	1	3	3	126	1	1	3	3	126
Mean Square	1644.43	5046.48	384.64	175.14	1953.15	.00	81.35	3.92	23.14
F	9.39	28.81	2.20		84.41	.00	3.52	.17	
P	.003	<.001	.092		<.001	.997	.017	.917	

Table 5.11. (Continued):

Source	Sex(S)	Quarter(Q)	S X Q	Error	Gain(G)	G X S	G X Q	G X S X Q	Error
Math Computation									
Degrees of Freedom	1	3	3	126	1	1	3	3	126
Mean Square	168.99	4575.42	178.63	110.01	2360.71	2.56	26.35	19.52	18.95
F	1.54	41.59	1.62		124.56	.14	1.39	1.03	
P	.217	<.001	.187		<.001	.714	.249	.382	
Math Concepts									
Degrees of Freedom	1	3	3	126	1	1	3	3	126
Mean Square	205.90	5979.87	32.02	117.49	601.86	3.20	21.62	13.97	25.41
F	1.75	50.90	.27		23.68	.13	.85	.55	
P	.188	<.001	.845		<.001	.723	.469	.649	
Math Problem Solving									
Degrees of Freedom	1	3	3	126	1	1	3	3	126
Mean Square	101.12	8049.39	291.33	113.11	1784.97	56.66	43.84	27.96	36.26
F	.89	71.16	2.58		49.22	1.56	1.21	.77	
P	.346	<.001	.057		<.001	.214	.309	.512	
Math Total									
Degrees of Freedom	1	3	3	126	1	1	3	3	126
Mean Square	178.52	6710.11	171.85	100.28	1794.33	3.95	10.76	9.78	14.62
F	1.78	66.92	1.71		122.75	.27	.74	.67	
P	.185	<.001	.168		<.001	.604	.532	.573	
Science									
Degrees of Freedom	1	3	3	126	1	1	3	3	126
Mean Square	471.98	5773.01	62.33	87.61	1132.64	13.03	10.21	2.30	16.28
F	5.39	65.90	.71		69.56	.80	.63	.14	
P	.022	<.001	.547		<.001	.373	.599	.935	
Social Studies									
Degrees of Freedom	1	3	3	126	1	1	3	3	126
Mean Square	.02	10646.46	69.44	104.29	871.20	37.17	68.87	24.38	23.68
F	.00	102.08	.67		36.80	1.57	2.91	1.03	
P	.989	<.001	.575		<.001	.213	.037	.382	

Table 5.12. Adjusted Means in Educational Achievement for Longitudinal Cohort 1 and Cohort 2: Carl Sandburg Junior High School

	N	Word Knowledge $\bar{X}$	Reading $\bar{X}$	Reading Total $\bar{X}$	Language $\bar{X}$	Spelling $\bar{X}$	Math Computation $\bar{X}$
Cohort 1							
Total	136	94.88	94.21	95.71	98.23	96.86	96.66
Male	78	95.24	94.69	96.10	96.46	95.50	95.93
Female	58	94.39	93.57	95.18	100.60	98.69	97.64
Cohort 2							
Total	134	94.08	94.98	95.82	98.57	97.59	99.44
Male	71	93.12	94.71	95.10	96.80	95.26	98.94
Female	63	95.15	95.30	96.64	100.55	100.22	100.02

	Math Concepts $\bar{X}$	Math Problem Solving $\bar{X}$	Math Total $\bar{X}$	Science $\bar{X}$	Social Studies $\bar{X}$
Cohort 1					
Total	89.39	95.95	99.05	98.19	96.05
Male	89.35	96.03	98.72	100.14	97.05
Female	89.44	95.85	99.49	95.56	94.70
Cohort 2					
Total	92.03	98.16	101.84	97.41	97.04
Male	91.57	97.81	101.38	98.95	97.22
Female	92.55	98.55	102.36	95.68	96.83

Table 5.13. Tests of Significance (ANCOVA) of Differences in Educational Achievement and Comparison of Gains of Longitudinal Cohort 1 and Cohort 2: Carl Sandburg Junior High School

Source	Sex(S)	Cohort(C)	S X C	Covariate	Error	Gain(G)	G X S	G X C	G X S X C	Error
Word Knowledge										
Degrees of Freedom	1	1	1	1	265	1	1	1	1	266
Mean Square	46.60	61.77	277.50	49112.87	87.81	4114.27	77.66	.09	1.45	15.98
F	.53	.70	3.16	559.28		257.53	4.86	.01	.09	
P	.467	.402	.077	<.001		<.001	.028	.939	.764	
Reading										
Degrees of Freedom	1	1	1	1	265	1	1	1	1	266
Mean Square	9.18	100.98	97.04	80901.57	118.24	5471.10	117.70	61.35	72.40	35.46
F	.08	.85	.82	684.23		154.28	3.32	1.73	2.04	
P	.781	.356	.366	<.001		<.001	.070	.190	.154	
Reading Total										
Degrees of Freedom	1	1	1	1	265	1	1	1	1	266
Mean Square	12.85	7.05	203.01	72749.45	97.03	5277.42	112.99	10.23	17.95	16.06
F	.13	.07	2.09	749.75		328.69	7.04	.64	1.12	
P	.716	.788	.149	<.001		<.001	.008	.425	.291	
Language										
Degrees of Freedom	1	1	1	1	265	1	1	1	1	266
Mean Square	2061.12	2.91	4.88	68049.36	104.31	2157.46	2.30	10.49	44.98	24.18
F	19.76	.03	.05	652.39		89.22	.09	.43	1.86	
P	<.001	.868	.829	<.001		<.001	.758	.511	.174	
Spelling										
Degrees of Freedom	1	1	1	1	265	1	1	1	1	266
Mean Square	2203.58	54.99	104.55	34617.77	156.90	2864.89	2.42	106.97	16.25	22.86
F	14.04	.35	.67	220.64		125.30	.11	4.68	.71	
P	<.001	.554	.415	<.001		<.001	.745	.031	.400	

Table 5.13. (Continued):

Source	Sex(S)	Cohort(C)	S X C	Covariate	Error	Gain(G)	G X S	G X C	G X S X C	Error
Math Computation										
Degrees of Freedom	1	1	1	1	265	1	1	1	1	266
Mean Square	259.76	963.78	13.53	32186.70	112.83	3304.88	1.14	154.13	9.00	23.62
F	2.30	8.54	.12	285.27		139.90	.05	6.52	.38	
P	.130	.004	.729	<.001		<.001	.826	.011	.538	
Math Concepts										
Degrees of Freedom	1	1	1	1	265	1	1	1	1	266
Mean Square	38.39	947.42	26.60	41143.65	101.80	1412.39	20.49	.10	15.27	24.42
F	.38	9.31	.26	404.16		57.84	.84	.00	.63	
P	.540	.003	.610	<.001		<.001	.361	.950	.430	
Math Problem Solving										
Degrees of Freedom	1	1	1	1	265	1	1	1	1	266
Mean Square	10.46	667.75	27.92	52683.75	108.45	2220.79	34.70	245.46	20.16	30.45
F	.10	6.16	.26	485.79		72.93	1.14	8.06	.66	
P	.756	.014	.612	<.001		<.001	.287	.005	.417	
Math Total										
Degrees of Freedom	1	1	1	1	265	1	1	1	1	266
Mean Square	101.49	1019.37	1.40	47278.59	93.79	2555.27	8.29	135.01	.67	14.40
F	1.08	10.87	.01	504.09		177.49	.58	9.38	.05	
P	.299	.001	.903	<.001		<.001	.449	.002	.829	
Science										
Degrees of Freedom	1	1	1	1	265	1	1	1	1	266
Mean Square	2047.41	38.61	56.74	39986.36	68.92	1960.15	16.92	24.63	5.88	18.51
F	29.71	.56	.82	580.21		105.87	.91	1.33	.32	
P	<.001	.455	.365	<.001		<.001	.340	.250	.574	
Social Studies										
Degrees of Freedom	1	1	1	1	265	1	1	1	1	266
Mean Square	249.43	175.87	130.04	55374.54	91.28	1987.25	34.72	2.41	38.93	20.56
F	2.73	1.93	1.42	606.62		96.64	1.69	.12	1.89	
P	.100	.166	.234	<.001		<.001	.195	.733	.170	

Table 5.14. Significant Differences (ANCOVA) in Educational Achievement and in Gain between Longitudinal Cohort 1 and Cohort 2: Carl Sandburg Junior High School

	Main Effects			Gains			
	Cohort(C)	Sex(S)	S X C	Gain(G)	G X C	G X S	G X S X C
Word Knowledge	NS	NS	NS	.001	NS	.028[5]	NS
Reading	NS	NS	NS	.001	NS	NS	NS
Reading Total	NS	NS	NS	.001	NS	.008[5]	NS
Language	NS	.001[2]	NS	.001	NS	NS	NS
Spelling	NS	.001[2]	NS	.001	.031[4]	NS	NS
Math Computation	.004[1]	NS	NS	.001	.011[4]	NS	NS
Math Concepts	.003[1]	NS	NS	.001	NS	NS	NS
Math Problem Solving	.014[1]	NS	NS	.001	.005[4]	NS	NS
Math Total	.001[1]	NS	NS	.001	.002[4]	NS	NS
Science	NS	.001[3]	NS	.001	NS	NS	NS
Social Studies	NS	NS	NS	.001	NS	NS	NS

[1]The mean achievement of Cohort 2 was significantly higher than the mean of Cohort 1.

[2]The mean achievement of the females was significantly higher than the mean of the males.

[3]The mean achievement of the males was significantly higher than the mean of the females.

[4]Cohort 2 gained significantly more than Cohort 1.

[5]The females gained significantly more than the males.

Table 5.15. Responses of Grade 7 and Grade 8 Students to Locally Constructed Attitude Inventory: Carl Sandburg Junior High School

	1977-78 Gr. 7			1978-79 Gr. 7			1979-80 Gr. 7			1977-78 Gr. 8			1978-79 Gr. 8			1979-80 Gr. 8		
	A	U	D	A	U	D	A	U	D	A	U	D	A	U	D	A	U	D
School																		
2. I am proud to be in this school.	64	26	10	79	15	6	85	11	4	46	31	23	56	26	18	81	12	7
7. I wish I could go to a different school.	7	16	77	8	16	76	7	12	81	16	23	61	11	18	71	11	8	81
12. This school has too many rules.	23	27	50	25	13	62	16	20	64	38	21	41	36	18	46	34	14	52
17. Students at this school have a lot of school spirit.	34	36	30	57	25	18	70	21	9	50	26	24	40	29	31	74	16	10
22. This school needs a lot of improvement.	27	26	47	15	13	72	4	15	81	40	26	34	30	27	43	24	15	61
TOTAL	31	26	43	37	16	47	36	16	48	38	25	37	35	24	41	45	13	42
Teacher																		
1. I think I have very good teachers.	69	19	12	80	9	11	84	13	3	72	20	9	63	25	12	66	27	7
6. The teachers here try to be fair with all students.	66	20	14	81	9	10	76	15	9	72	15	13	56	21	23	66	19	15
11. My teachers seem to care how I am doing in school.	66	21	13	74	17	9	68	22	10	70	21	9	61	25	14	68	25	7
16. My teachers are well prepared when they meet their classes.	65	22	13	76	15	19	69	21	10	75	14	11	58	21	21	61	25	14
21. My teachers enforce all the school rules equally.	53	25	22	55	21	24	51	24	25	50	29	21	37	30	33	48	27	25
TOTAL	64	21	15	73	12	15	70	19	11	67	20	13	55	24	21	62	25	12
Learning																		
4. I think my classes are very boring.	17	29	54	42	16	42	41	16	43	42	19	39	43	18	39	41	21	38
9. I think my schoolwork is too hard.	8	25	67	12	23	65	10	22	68	14	21	65	21	23	56	15	20	65
14. I usually understand my school assignments.	78	12	10	66	15	19	76	11	13	73	13	14	71	10	19	72	12	16
19. I am satisfied with what I am learning in school.	76	13	11	79	11	10	79	13	8	73	13	14	64	18	18	70	16	14
24. I get mixed up a lot in my schoolwork.	26	17	57	32	14	54	24	12	64	29	17	54	32	15	53	30	17	53
TOTAL	41	19	40	42	16	42	41	16	43	42	19	39	43	18	39	41	21	38
Peers																		
3. Most of the students in this school are friendly.	58	17	25	57	19	24	57	18	25	64	19	17	61	19	20	59	13	28
8. I have a lot of friends in school.	79	10	11	67	15	18	79	13	8	76	14	10	78	10	12	78	12	10
13. The students in this school are nice kids.	50	29	21	46	29	25	43	36	21	51	35	14	43	34	23	46	30	24
18. My closest friends are students at this school.	70	9	21	73	9	18	75	9	16	72	8	20	69	12	19	81	4	15
23. Most of my friends want to do what I want to do.	34	35	31	33	34	33	37	34	29	38	37	25	44	31	25	30	32	38
TOTAL	58	20	22	55	21	24	58	22	20	60	23	17	59	21	20	59	18	23
Self																		
5. Most of my teachers like me.	49	41	10	56	31	13	47	43	10	54	40	6	50	34	16	53	34	13
10. I sometimes wish that I were someone else.	48	14	38	45	12	43	44	12	44	39	12	49	39	15	46	44	12	44
15. Many times I am in trouble at school.	14	9	77	11	18	71	7	13	80	14	14	72	21	10	69	10	15	75
20. My schoolwork is very good most of the time.	63	21	16	65	19	16	68	17	15	60	23	17	59	25	16	61	26	13
25. Most of the children in my classes like me.	59	32	9	59	28	13	60	30	10	59	30	11	64	27	9	65	25	10
TOTAL	46	24	30	47	22	31	45	23	32	45	24	31	47	22	31	46	23	31
GRAND TOTAL	48	22	30	51	18	31	50	19	31	51	22	27	48	22	30	51	20	29

Table 6.1. Mean Mental Ability and Mean Educational Achievement for Four Successive Grade 9 PACE Groups: Cedarburg High School

	Mental Ability			Comprehension		Vocabulary		Reading Total		Usage		Spelling	
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1977-78													
Total	83	117.27	13.27	15.92	5.11	16.11	5.26	15.48	4.85	15.81	4.52	15.84	4.93
Male	40	116.00	11.14	14.73	5.18	15.53	4.77	14.55	4.57	14.53	3.91	13.70	4.12
Female	43	118.44	15.02	17.02	4.85	16.65	5.67	16.35	5.00	17.00	4.76	17.84	4.83
1978-79													
Total	97	114.76	11.02	14.65	3.69	15.43	4.54	14.38	3.73	16.35	4.17	15.43	5.04
Male	46	115.26	10.78	14.46	3.81	15.20	4.54	14.22	3.69	15.15	3.96	13.96	5.65
Female	51	114.31	11.33	14.82	3.62	15.65	4.58	14.53	3.79	17.43	4.10	16.76	4.02
1979-80													
Total	109	119.91	11.21	16.17	4.46	15.57	4.67	15.33	4.35	16.59	3.75	15.81	4.77
Male	54	120.72	12.02	16.43	4.84	15.96	4.50	15.69	4.64	15.93	3.77	14.74	4.79
Female	55	119.11	10.40	15.91	4.09	15.18	4.83	14.98	4.07	17.24	3.66	16.85	4.56
1980-81													
Total	109	116.08	13.06	15.96	4.77	16.28	4.65	15.62	4.50	15.85	4.43	16.09	4.76
Male	56	117.00	13.10	15.63	5.02	16.32	4.86	15.52	4.86	15.32	4.78	14.80	4.74
Female	53	115.11	13.07	16.32	4.51	16.25	4.46	15.74	4.12	16.42	4.01	17.45	4.43

	Language Total		Math		Social Studies		Science		Use of Sources	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1977-78										
Total	15.90	4.25	14.24	5.25	14.63	5.02	16.22	5.39	15.70	4.97
Male	14.25	3.48	14.55	4.79	14.28	4.86	15.68	5.65	14.68	5.54
Female	17.44	4.36	13.95	5.69	14.95	5.20	16.72	5.15	16.65	4.23
1978-79										
Total	16.03	4.01	13.97	4.40	13.29	4.14	16.05	4.50	16.95	5.03
Male	14.70	4.14	14.98	4.59	12.61	4.58	16.76	4.51	15.74	5.12
Female	17.24	3.52	13.06	4.05	13.90	3.63	15.41	4.44	18.04	4.73
1979-80										
Total	16.42	3.92	14.78	5.65	15.37	4.59	17.87	4.55	18.40	4.44
Male	15.63	3.92	16.07	6.14	16.41	5.32	18.91	4.86	19.11	4.84
Female	17.20	3.80	13.51	4.85	14.35	3.50	16.85	4.02	17.71	3.93
1980-81										
Total	16.16	4.36	14.66	4.87	15.12	4.40	16.03	5.22	17.13	5.49
Male	15.23	4.61	15.43	5.06	15.21	4.72	16.39	5.65	16.52	6.45
Female	17.13	3.90	13.85	4.57	15.02	4.09	15.64	4.76	17.77	4.20

Table 6.2. Adjusted Means in Educational Achievement for Four Successive Grade 9 PACE Groups: Cedarburg High School

	N	Comprehension	Vocabulary	Reading Total	Usage	Spelling	Language Total	Math	Social Studies	Science	Use of Sources
1977-78											
Total	83	15.87	16.06	15.43	15.76	15.80	15.86	14.19	14.58	16.16	15.64
Male	40	14.97	15.76	14.80	14.75	13.90	14.47	14.83	14.51	15.95	14.96
Female	43	16.70	16.34	16.02	16.70	17.58	17.15	13.59	14.65	16.37	16.28
1978-79											
Total	97	15.19	15.95	14.92	16.84	15.87	16.51	14.38	13.79	16.64	17.56
Male	46	14.88	15.60	14.64	15.53	14.30	15.07	15.45	13.00	17.22	16.22
Female	51	15.47	16.26	15.17	18.02	17.28	17.81	13.79	14.50	16.11	18.77
1979-80											
Total	109	15.50	14.93	14.66	15.98	15.27	15.82	14.02	14.75	17.14	17.64
Male	54	15.57	15.14	14.82	15.14	14.05	14.86	15.10	15.61	17.97	18.13
Female	55	15.43	14.72	14.50	16.80	16.47	16.77	12.96	13.90	16.33	17.16
1980-81											
Total	109	16.19	16.50	15.85	16.06	16.28	16.36	14.92	15.33	16.28	17.39
Male	56	15.64	16.33	15.53	15.33	14.81	15.24	15.44	15.23	16.41	16.53
Female	53	16.78	16.68	16.19	16.83	17.82	17.54	14.36	15.44	16.14	18.29

Table 6.3. Tests of Significance (ANCOVA) of Differences in Educational Achievement for Four Successive Grade 9 PACE Groups: Cedarburg High School

Source	Covariate	Year(Y)	Sex(S)	Y X S	Residual	Total
Comprehension						
Degrees of Freedom	1	3	1	3	389	397
Mean Square	3173.30	20.30	67.34	15.27	12.23	20.67
F	259.50	1.66	5.51	1.25		
P	<.001	.175	.019	.292		
Vocabulary						
Degrees of Freedom	1	3	1	3	389	397
Mean Square	2919.84	47.02	8.41	6.26	15.33	22.63
F	190.48	3.07	.55	.41		
P	<.001	.028	.459	.747		
Reading Total						
Degrees of Freedom	1	3	1	3	389	397
Mean Square	3200.23	30.30	26.97	10.00	10.83	19.12
F	295.50	2.80	2.49	.92		
P	<.001	.040	.115	.430		
Usage						
Degrees of Freedom	1	3	1	3	389	397
Mean Square	2629.60	18.69	352.84	4.75	10.35	17.71
F	254.11	1.81	34.10	.460		
P	<.001	.146	<.001	.711		
Spelling						
Degrees of Freedom	1	3	1	3	389	397
Mean Square	2063.40	20.17	895.80	6.19	16.49	23.57
F	125.16	1.22	54.34	.38		
P	<.001	.301	<.001	.771		

Table 6.3. (Continued):

Source	Covariate	Year(Y)	Sex(S)	Y X S	Residual	Total
Language Total						
Degrees of Freedom	1	3	1	3	389	397
Mean Square	2544.01	11.80	567.71	3.73	9.43	17.02
F	269.91	1.25	60.23	.40		
P	<.001	.291	<.001	.756		
Math						
Degrees of Freedom	1	3	1	3	389	397
Mean Square	4059.23	16.04	230.32	5.90	14.71	25.61
F	276.04	1.09	15.66	.40		
P	<.001	.353	<.001	.752		
Social Studies						
Degrees of Freedom	1	3	1	3	389	397
Mean Square	2736.82	43.52	.14	45.27	13.30	21.00
F	205.75	3.27	.01	3.40		
P	<.001	.021	.919	.018		
Science						
Degrees of Freedom	1	3	1	3	389	397
Mean Square	3785.25	20.21	41.26	19.69	14.23	24.61
F	266.09	1.42	2.90	1.38		
P	<.001	.236	.089	.247		
Use of Sources						
Degrees of Freedom	1	3	1	3	389	397
Mean Square	4127.75	79.95	133.48	60.26	13.89	25.66
F	297.16	5.76	9.61	4.34		
P	<.001	.001	.002	.005		

Table 6.4. Mean Mental Ability and Mean Educational Achievement for Three Successive Grade 10 PACE Groups: Cedarburg High School

	Mental Ability			Comprehension		Vocabulary		Reading Total		Usage		Spelling	
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1978-79													
Total	83	117.11	13.25	18.12	5.15	17.87	5.50	17.53	5.02	17.92	4.66	17.01	5.10
Male	41	115.88	10.90	17.29	4.85	17.37	4.94	16.73	4.55	16.80	4.21	15.12	4.58
Female	42	118.31	15.24	18.93	5.35	18.36	6.01	18.31	5.37	19.00	4.86	18.86	4.95
1979-80													
Total	97	114.43	11.03	17.12	4.53	16.21	4.78	16.14	4.32	17.65	3.91	17.12	5.48
Male	47	114.45	11.34	16.38	4.82	16.04	4.92	15.66	4.46	16.36	4.20	15.66	6.22
Female	50	114.42	10.84	17.82	4.16	16.36	4.70	16.60	4.18	18.86	3.21	18.50	4.30
1980-81													
Total	107	119.86	11.36	18.60	4.50	18.75	4.81	18.31	4.62	18.90	4.77	18.74	5.01
Male	55	120.46	12.08	18.40	5.08	19.31	4.96	18.45	5.04	18.58	5.55	17.45	5.04
Female	52	119.23	10.64	18.81	3.84	18.15	4.62	18.15	4.18	19.23	3.81	20.10	4.64

	Language Total		Math		Social Studies		Science		Use of Sources	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1978-79										
Total	17.66	4.48	17.41	5.73	16.73	4.68	18.58	5.32	18.88	5.86
Male	16.22	3.73	17.37	6.22	16.54	4.28	18.80	5.16	17.78	5.90
Female	19.07	4.73	17.45	5.28	16.93	5.08	18.36	5.53	19.95	5.69
1979-80										
Total	17.68	4.36	16.49	5.41	16.51	4.58	19.99	4.22	17.23	5.07
Male	16.28	4.79	18.11	5.18	16.15	4.89	19.77	4.61	16.23	5.24
Female	19.00	3.45	14.98	5.23	16.84	4.29	20.20	3.85	18.16	4.76
1980-81										
Total	19.12	4.64	16.89	5.77	17.64	4.98	19.92	4.33	19.30	5.51
Male	18.31	5.16	17.89	6.81	18.16	5.49	20.55	4.27	19.38	6.44
Female	19.98	3.88	15.83	4.22	17.08	4.37	19.25	4.33	19.21	4.37

Table 6.5. Adjusted Means in Educational Achievement for Three Successive Grade 10 PACE Groups: Cedarburg High School

	N	Comprehension	Vocabulary	Reading Total	Usage	Spelling	Language Total	Math	Social Studies	Science	Use of Sources
1978-79											
Total	83	18.15	17.90	17.56	17.94	17.04	17.09	17.45	16.77	18.61	18.92
Male	41	17.66	17.75	17.12	17.12	15.40	16.53	17.83	16.89	19.17	18.18
Female	42	18.64	18.05	18.00	18.75	18.64	18.83	17.09	16.65	18.07	19.64
1979-80											
Total	97	17.88	16.99	16.94	18.31	17.69	18.32	17.45	17.23	20.74	18.05
Male	47	17.13	16.83	16.46	17.02	16.22	16.91	19.05	16.87	20.52	17.06
Female	50	18.58	17.15	17.40	19.52	19.07	19.64	15.95	17.57	20.96	18.99
1980-81											
Total	107	17.89	18.01	17.56	18.28	18.21	18.52	15.99	16.96	19.21	18.52
Male	55	17.53	18.40	17.53	17.82	16.80	17.57	16.79	17.33	19.67	18.43
Female	52	18.27	17.59	17.58	18.76	19.69	19.52	15.15	16.56	18.71	18.62

Table 6.6. Tests of Significance (ANCOVA) of Differences in Educational Achievement for Three Successive Grade 10 PACE Groups: Cedarburg High School

Source	Covariate	Year(Y)	Sex(S)	Y X S	Residual	Total
Comprehension						
Degrees of Freedom	1	2	1	2	280	286
Mean Square	2881.43	2.18	78.78	3.24	11.76	22.37
F	245.11	.19	6.70	.28		
P	<.001	.831	.010	.760		
Vocabulary						
Degrees of Freedom	1	2	1	2	280	286
Mean Square	3152.26	29.04	.25	10.60	14.00	26.11
F	225.11	2.07	.02	.76		
P	<.001	.128	.893	.470		
Reading Total						
Degrees of Freedom	1	2	1	2	280	286
Mean Square	3235.65	12.35	27.85	6.34	10.04	22.26
F	322.15	1.23	2.77	.63		
P	<.001	.294	.097	.533		
Usage						
Degrees of Freedom	1	2	1	2	280	286
Mean Square	2194.68	3.55	202.07	15.63	11.45	20.11
F	191.60	.31	17.64	1.37		
P	<.001	.734	<.001	.257		
Spelling						
Degrees of Freedom	1	2	1	2	280	286
Mean Square	1611.72	35.18	635.20	1.05	19.24	27.47
F	83.77	1.83	33.02	.06		
P	<.001	.163	<.001	.947		

Table 6.6. (Continued):

Source	Covariate	Year(Y)	Sex(S)	Y X S	Residual	Total
Language Total						
Degrees of Freedom	1	2	1	2	280	286
Mean Square	2065.19	18.05	383.56	3.85	11.62	20.57
F	177.67	1.55	33.00	.33		
P	<.001	.213	<.001	.718		
Math						
Degrees of Freedom	1	2	1	2	280	286
Mean Square	4574.77	73.79	238.79	32.71	14.66	31.71
F	312.02	5.03	16.29	2.23		
P	<.001	.007	<.001	.109		
Social Studies						
Degrees of Freedom	1	2	1	2	280	286
Mean Square	2645.51	4.60	.75	13.90	13.40	22.78
F	197.46	.34	.06	1.04		
P	<.001	.710	.813	.356		
Science						
Degrees of Freedom	1	2	1	2	280	286
Mean Square	2885.76	109.22	20.88	17.37	10.99	21.42
F	262.67	9.94	1.90	1.58		
P	<.001	<.001	.169	.208		
Use of Sources						
Degrees of Freedom	1	2	1	2	280	286
Mean Square	3436.61	17.64	100.96	20.69	17.39	30.53
F	197.62	1.01	5.81	1.19		
P	<.001	.364	.017	.306		

Table 6.7. Mean Mental Ability and Mean Educational Achievement for Two Successive Grade 11 PACE Groups: Cedarburg High School

	Mental Ability			Comprehension		Vocabulary		Reading Total		Usage		Spelling	
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1979-80													
Total	71	116.15	12.49	19.11	5.99	18.28	5.75	18 44	5.76	17.80	5.23	17.66	5.54
Male	35	115.11	10.30	17.89	5.97	17.09	5.45	17.23	5.53	16.37	5.18	15.74	5.83
Female	36	117.17	14.38	20.31	5.84	19.44	5.86	19.61	5.80	19.19	4.97	19.53	4.60
1980-81													
Total	95	114.32	10.95	18.72	4.51	19.17	4.43	18.56	4.32	19.12	4.28	19.13	4.89
Male	46	115.02	10.75	18.54	4.99	19.24	5.25	18.59	5.08	18.04	4.81	17.74	5.53
Female	49	113.65	11.21	18.88	4.06	19.10	3.60	18.53	3.98	20.12	3.48	20.43	3.81

	Language Total		Math		Social Studies		Science		Use of Sources	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1979-80										
Total	17.93	5.18	18.54	6.56	18.39	5.79	20.15	5.33	19.10	6.75
Male	16.20	5.02	18.49	6.86	17.63	6.26	19.80	5.89	17.83	7.37
Female	19.61	4.83	18.58	6.35	19.14	5.28	20.50	4.78	20.33	5.93
1980-81										
Total	19.45	4.41	18.68	5.45	17.84	4.70	20.03	3.83	19.41	4.78
Male	18.15	5.07	20.11	5.42	18.37	5.07	21.04	4.09	18.72	5.25
Female	20.67	3.30	17.35	5.18	17.35	4.32	19.08	3.34	20.06	4.25

Table 6.8. Adjusted Means in Educational Achievement for Two Successive Grade 11 PACE Groups: Cedarburg High School

	N	Comprehension	Vocabulary	Reading Total	Usage	Spelling	Language Total	Math	Social Studies	Science	Use of Sources
1979-80											
Total	71	18.81	17.99	18.13	17.54	17.46	17.56	18.17	18.11	19.89	18.82
Male	35	17.88	17.08	17.23	16.37	15.74	16.37	18.48	17.63	19.80	17.83
Female	36	19.71	18.87	19.00	18.68	19.13	18.71	17.87	18.59	19.98	19.79
1980-81											
Total	95	18.94	19.39	18.79	19.31	19.28	19.30	18.95	18.05	20.23	19.62
Male	46	18.57	19.26	18.61	18.06	17.75	18.06	20.14	18.39	21.06	18.74
Female	49	19.30	19.51	18.96	20.48	20.71	20.46	17.85	17.74	19.43	20.44

Table 6.9. Tests of Significance (ANCOVA) of Differences in Educational Achievement for Two Successive Grade 11 PACE Groups: Cedarburg High School

Source	Covariate	Year(Y)	Sex(S)	Y X S	Residual	Total
Comprehension						
Degrees of Freedom	1	1	1	1	161	165
Mean Square	1826.72	.72	66.38	12.26	15.45	26.83
F	118.25	.05	4.30	.79		
P	<.001	.829	.040	.374		
Vocabulary						
Degrees of Freedom	1	1	1	1	161	165
Mean Square	1713.20	80.00	41.88	24.04	14.68	25.50
F	116.71	5.45	2.85	1.64		
P	<.001	.021	.093	.202		
Reading Total						
Degrees of Freedom	1	1	1	1	161	165
Mean Square	1908.65	18.07	45.84	20.74	13.85	25.69
F	137.83	1.31	3.31	1.50		
P	<.001	.255	.071	.223		
Usage						
Degrees of Freedom	1	1	1	1	161	165
Mean Square	1376.66	123.67	227.22	.12	12.55	22.49
F	109.71	9.86	18.11	.01		
P	<.001	.002	<.001	.921		
Spelling						
Degrees of Freedom	1	1	1	1	161	165
Mean Square	832.88	130.61	408.21	1.88	19.48	27.16
F	42.76	6.71	20.96	.10		
P	<.001	.010	<.001	.757		

Table 6.9. (Continued):

Source	Covariate	Year(Y)	Sex(S)	Y X S	Residual	Total
Language Total						
Degrees of Freedom	1	1	1	1	161	165
Mean Square	1195.96	149.89	338.32	.09	13.38	23.05
F	89.35	11.20	25.28	.01		
P	<.001	.001	<.001	.935		
Math						
Degrees of Freedom	1	1	1	1	161	165
Mean Square	2614.04	26.73	85.33	28.58	18.68	35.17
F	139.96	1.43	4.57	1.53		
P	<.001	.233	.034	.218		
Social Studies						
Degrees of Freedom	1	1	1	1	161	165
Mean Square	1588.91	.07	.94	26.35	17.23	26.91
F	92.24	<.01	.06	1.53		
P	<.001	.949	.816	.218		
Science						
Degrees of Freedom	1	1	1	1	161	165
Mean Square	1432.52	5.58	20.93	32.37	11.40	20.42
F	125.64	.49	1.84	2.84		
P	<.001	.485	.177	.094		
Use of Sources						
Degrees of Freedom	1	1	1	1	161	165
Mean Square	1532.46	24.77	136.60	.68	22.69	32.38
F	67.55	1.09	6.02	.03		
P	<.001	.298	.015	.863		

Table 6.10. Mean Mental Ability and Mean Educational Achievement of One Grade 12 PACE Group: Cedarburg High School

	Mental Ability			Comprehension		Vocabulary		Reading Total		Usage		Spelling	
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
PACE 1980-81													
Total	72	116.33	13.44	18.65	6.87	20.54	6.46	19.46	6.47	19.01	6.36	18.38	6.04
Male	35	115.77	11.48	17.77	7.58	20.03	6.80	18.63	7.02	17.51	6.71	16.69	6.01
Female	37	116.86	15.20	19.49	6.10	21.03	6.18	20.24	5.89	20.43	5.75	19.97	5.69

	Language Total		Math		Social Studies		Science		Use of Sources	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
PACE 1980-81										
Total	19.14	5.90	19.17	7.55	19.44	6.48	18.49	7.09	19.50	7.30
Male	17.46	6.00	19.83	7.84	19.00	6.76	17.89	8.09	18.66	7.42
Female	20.73	5.40	18.54	7.32	19.86	6.27	19.05	6.07	20.30	7.20

Table 6.11. Mean Mental Ability and Mean Educational Achievement for PACE Longitudinal Cohort 1: Cedarburg High School

	Mental Ability			Comprehension							
				Grade 9		Grade 10		Grade 11		Grade 12	
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	61	116.28	13.23	15.92	5.33	18.10	5.39	19.25	6.37	19.08	6.66
Male	29	115.28	11.25	14.48	5.64	17.07	5.12	17.93	6.47	17.97	7.52
Female	32	117.19	14.92	17.22	4.75	19.03	5.54	20.44	6.13	20.09	5.70
1st Quarter (Lowest)											
Total	15	98.87	7.08	10.67	4.73	12.73	5.22	13.33	3.92	13.07	4.27
Male	6	97.67	5.75	7.00	3.90	10.50	3.94	12.33	2.50	9.67	1.86
Female	9	99.67	8.08	13.11	3.59	14.22	5.63	14.00	4.66	15.33	3.90
2nd Quarter											
Total	15	112.80	3.28	14.73	3.47	17.73	3.81	17.73	5.14	17.13	5.17
Male	8	112.63	3.46	13.75	3.33	17.13	3.14	16.50	5.58	15.75	6.27
Female	7	113.00	3.32	15.86	3.53	18.43	4.61	19.14	4.60	18.71	3.30
3rd Quarter											
Total	16	120.88	1.78	17.31	3.86	19.00	3.86	20.25	6.19	20.56	6.56
Male	10	121.00	2.05	16.70	4.35	18.50	4.25	19.20	7.30	21.10	7.22
Female	6	120.67	1.37	18.33	2.94	19.83	3.31	22.00	3.63	19.67	5.82
4th Quarter (Highest)											
Total	15	132.27	7.07	20.87	3.42	22.87	3.27	25.60	2.59	25.47	3.16
Male	5	129.20	3.35	20.20	1.79	22.00	2.45	24.40	1.95	25.20	1.48
Female	10	133.80	8.05	21.20	4.05	23.30	3.65	26.20	2.74	25.60	3.81

Table 6.11. (Continued):

	Vocabulary							
	Grade 9		Grade 10		Grade 11		Grade 12	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	16.36	5.49	17.93	5.55	18.36	6.17	20.75	6.49
Male	15.38	5.16	17.10	5.32	16.83	5.92	19.69	7.33
Female	17.25	5.70	18.69	5.72	19.75	6.15	21.72	5.55
1st Quarter (Lowest)								
Total	11.73	4.79	12.40	4.78	12.27	5.68	16.00	6.18
Male	10.50	3.56	11.00	3.41	10.00	3.69	14.00	5.55
Female	12.56	5.50	13.33	5.50	13.78	6.44	17.33	6.52
2nd Quarter								
Total	14.47	3.87	17.27	4.18	17.80	5.60	19.40	6.20
Male	13.38	4.00	15.13	3.80	15.13	5.82	16.75	6.61
Female	15.71	3.59	19.71	3.30	20.86	3.63	22.43	4.32
3rd Quarter								
Total	17.00	3.29	19.06	3.26	19.44	2.90	21.69	6.01
Male	16.70	3.86	19.60	3.50	19.30	3.16	22.00	7.23
Female	17.50	2.26	18.17	2.86	19.67	2.66	21.17	3.71
4th Quarter (Highest)								
Total	22.20	3.97	22.93	4.32	23.87	4.09	25.87	3.16
Male	21.80	3.11	22.60	3.71	22.80	3.27	26.60	2.30
Female	22.40	4.48	23.10	4.77	24.40	4.50	25.50	3.57

Table 6.11. (Continued):

	Reading Total							
	Grade 9		Grade 10		Grade 11		Grade 12	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	15.62	5.04	17.49	5.20	18.61	6.16	19.79	6.47
Male	14.41	4.90	16.48	4.82	17.21	6.01	18.55	7.40
Female	16.72	4.99	18.41	5.45	19.88	6.10	20.91	5.38
1st Quarter (Lowest)								
Total	11.07	3.47	12.00	4.36	12.60	4.26	14.00	4.41
Male	8.83	1.47	10.33	3.27	11.00	1.79	11.00	2.10
Female	12.56	3.68	13.11	4.81	13.67	5.15	16.00	4.47
2nd Quarter								
Total	13.67	3.09	16.87	3.18	17.40	5.03	17.73	5.30
Male	12.63	3.02	15.38	2.77	15.75	5.44	15.50	6.00
Female	14.86	2.91	18.57	2.88	19.29	4.07	20.29	3.04
3rd Quarter								
Total	16.50	3.46	18.31	3.05	19.50	4.83	21.38	6.11
Male	16.10	4.07	18.30	3.40	18.80	5.59	21.80	7.10
Female	17.17	2.32	18.33	2.66	20.67	3.33	20.67	4.50
4th Quarter (Highest)								
Total	21.20	3.73	22.73	3.75	24.87	3.31	25.93	2.89
Male	20.60	1.95	22.00	2.00	23.80	2.05	26.00	1.22
Female	21.50	4.43	23.10	4.43	25.40	3.78	25.90	3.51

Table 6.11. (Continued):

	Usage							
	Grade 9		Grade 10		Grade 11		Grade 12	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	15.66	4.59	17.70	4.66	18.02	5.45	19.26	6.43
Male	14.17	4.01	16.69	4.20	16.55	5.41	17.14	7.09
Female	17.00	4.72	18.63	4.92	19.34	5.23	21.19	5.16
1st Quarter (Lowest)								
Total	11.73	5.08	13.20	4.18	13.07	5.57	14.73	6.17
Male	9.50	2.95	12.17	2.04	11.50	4.51	9.83	3.87
Female	13.22	5.78	13.89	5.16	14.11	6.21	18.00	5.22
2nd Quarter								
Total	14.53	3.07	16.67	3.33	17.27	4.71	17.67	5.18
Male	13.00	2.33	15.75	4.20	15.13	5.14	15.25	5.55
Female	16.29	2.98	17.71	1.70	19.71	2.81	20.43	3.15
3rd Quarter								
Total	16.13	2.39	19.38	3.48	19.00	3.50	20.31	6.88
Male	15.50	2.80	18.60	3.66	18.20	4.26	20.30	7.33
Female	17.17	.98	20.67	3.01	20.33	.82	20.33	6.71
4th Quarter (Highest)								
Total	20.20	2.96	21.47	3.18	22.67	3.15	24.27	2.99
Male	19.00	2.35	19.80	1.92	21.60	3.36	22.60	2.97
Female	20.80	3.16	22.30	3.43	23.20	3.08	25.10	2.77

Table 6.11. (Continued):

	Spelling							
	Grade 9		Grade 10		Grade 11		Grade 12	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	15.87	5.05	17.39	5.28	17.95	5.76	18.75	6.08
Male	13.90	4.37	15.52	4.89	16.07	6.15	16.62	6.47
Female	17.66	5.02	19.09	5.11	19.66	4.87	20.69	5.07
1st Quarter (Lowest)								
Total	12.33	3.92	14.07	4.08	15.00	5.40	16.13	5.40
Male	12.00	3.46	14.67	4.46	15.33	6.89	15.50	5.72
Female	12.56	4.39	13.67	4.03	14.78	4.60	16.56	5.48
2nd Quarter								
Total	16.20	5.80	17.20	6.46	17.33	6.75	17.60	7.56
Male	13.63	5.68	14.38	6.70	15.00	8.00	13.63	7.61
Female	19.14	4.67	20.43	4.72	20.00	4.00	22.14	4.53
3rd Quarter								
Total	15.69	4.13	16.88	3.88	16.88	4.40	18.38	5.58
Male	13.70	3.68	15.30	3.74	15.50	4.95	17.20	6.25
Female	19.00	2.37	19.50	2.59	19.17	1.94	20.33	3.98
4th Quarter (Highest)								
Total	19.27	4.03	21.47	3.89	22.67	3.44	22.93	3.35
Male	17.00	3.74	18.80	3.90	19.80	4.09	21.60	3.29
Female	20.40	3.84	22.80	3.29	24.10	2.02	23.60	3.34

Table 6.11. (Continued):

	Language Total							
	Grade 9		Grade 10		Grade 11		Grade 12	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	15.82	4.35	17.72	4.54	18.21	5.38	19.41	5.99
Male	14.17	3.62	16.34	3.84	16.48	5.22	17.21	6.43
Female	17.31	4.47	18.97	4.81	19.78	5.10	21.41	4.84
1st Quarter (Lowest)								
Total	12.07	4.04	13.67	3.90	14.00	5.03	15.73	5.31
Male	11.00	2.61	13.33	2.07	13.33	4.93	12.83	4.40
Female	12.78	4.79	13.89	4.88	14.44	5.34	17.67	5.17
2nd Quarter								
Total	15.27	3.58	17.00	4.02	17.40	5.14	17.93	5.84
Male	13.38	3.54	15.38	4.80	15.25	5.70	14.63	6.09
Female	17.43	2.23	18.86	1.77	19.86	3.24	21.71	2.21
3rd Quarter								
Total	16.06	2.89	18.38	2.94	18.25	4.02	19.69	6.22
Male	14.80	2.74	17.30	2.83	17.00	4.62	19.10	6.79
Female	18.17	1.72	20.17	2.32	20.33	1.37	20.67	5.57
4th Quarter (Highest)								
Total	19.87	3.16	21.80	3.32	23.20	2.91	24.27	2.79
Male	18.00	2.92	19.60	2.88	21.20	3.03	22.80	2.49
Female	20.80	2.97	22.90	3.07	24.20	2.39	25.00	2.75

Table 6.11. (Continued):

	Math							
	Grade 9		Grade 10		Grade 11		Grade 12	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	13.85	5.10	17.34	5.50	18.66	6.73	19.16	7.39
Male	14.34	4.55	17.31	6.08	18.62	7.12	19.41	8.06
Female	13.41	5.59	17.38	5.02	18.69	6.47	18.94	6.84
1st Quarter (Lowest)								
Total	9.73	4.15	11.87	3.38	13.00	5.83	13.33	6.20
Male	9.33	2.16	11.00	3.85	11.67	6.22	10.50	6.72
Female	10.00	5.20	12.44	3.13	13.89	5.75	15.22	5.38
2nd Quarter								
Total	11.80	3.93	15.60	3.83	15.73	4.79	15.87	5.26
Male	13.50	3.42	15.75	4.56	16.25	6.27	16.63	6.74
Female	9.86	3.76	15.43	3.15	15.14	2.61	15.00	3.16
3rd Quarter								
Total	15.44	4.05	19.38	4.41	20.56	4.91	21.06	6.88
Male	16.70	4.64	20.10	5.28	21.30	5.60	23.10	5.43
Female	13.33	1.37	18.17	2.32	19.33	3.61	17.67	8.19
4th Quarter (Highest)								
Total	18.33	3.77	22.40	3.91	25.20	4.23	26.27	3.26
Male	17.00	2.92	21.80	5.63	25.40	2.88	27.20	2.77
Female	19.00	4.11	22.70	3.06	25.10	4.91	25.80	3.52

Table 6.11. (Continued):

	Social Studies							
	Grade 9		Grade 10		Grade 11		Grade 12	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	14.59	5.37	16.87	4.94	18.67	6.07	19.72	6.43
Male	14.00	5.42	16.38	4.75	17.93	6.61	18.83	7.00
Female	15.13	5.36	17.31	5.15	19.34	5.55	20.53	5.87
1st Quarter (Lowest)								
Total	9.33	4.78	11.33	3.79	13.80	4.20	14.87	4.75
Male	7.17	3.97	10.50	2.59	13.33	2.73	13.17	4.36
Female	10.78	4.92	11.89	4.48	14.11	5.09	16.00	4.90
2nd Quarter								
Total	13.53	3.29	16.33	2.77	17.87	5.14	18.53	6.02
Male	12.88	2.42	16.50	2.62	17.50	6.00	17.38	7.58
Female	14.29	4.15	16.14	3.13	18.29	4.39	19.86	3.72
3rd Quarter								
Total	15.19	2.93	18.69	3.89	18.56	6.53	19.81	6.43
Male	15.40	3.50	17.50	4.50	18.00	8.14	20.30	6.88
Female	14.83	1.83	20.67	1.21	19.50	2.66	19.00	6.13
4th Quarter (Highest)								
Total	20.27	3.88	21.00	3.36	24.47	2.42	25.67	3.09
Male	21.20	2.39	21.00	3.16	24.00	2.45	25.00	2.55
Female	19.80	4.49	21.00	3.62	24.70	2.50	26.00	3.40

Table 6.11. (Continued):

	Science							
	Grade 9		Grade 10		Grade 11		Grade 12	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	16.00	5.41	18.33	5.21	20.31	5.51	18.54	6.87
Male	15.31	5.96	18.21	5.26	19.93	6.20	17.41	8.08
Female	16.63	4.86	18.44	5.25	20.66	4.88	19.56	5.00
1st Quarter (Lowest)								
Total	10.73	4.96	12.87	5.22	15.53	4.94	12.73	4.50
Male	7.50	3.62	11.83	6.05	14.17	5.49	9.17	2.64
Female	12.89	4.68	13.56	4.85	16.44	4.64	15.11	3.89
2nd Quarter								
Total	14.47	4.60	17.87	3.98	18.33	4.86	17.27	6.56
Male	14.00	4.90	17.88	4.16	18.63	6.61	15.63	8.05
Female	15.00	4.55	17.86	4.10	18.00	2.00	19.14	4.14
3rd Quarter								
Total	18.63	3.05	20.13	3.20	22.06	4.42	19.88	7.08
Male	18.50	3.78	20.40	3.27	22.00	5.16	20.40	8.02
Female	18.83	1.47	19.67	3.33	22.17	3.25	19.00	5.76
4th Quarter (Highest)								
Total	20.00	3.51	22.33	3.04	25.20	1.82	24.20	3.36
Male	20.40	2.30	22.00	1.58	24.80	1.10	24.20	1.30
Female	19.80	4.08	22.50	3.63	25.40	2.12	24.20	4.10

Table 6.11. (Continued):

	Use of Sources							
	Grade 9		Grade 10		Grade 11		Grade 12	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	15.77	4.93	18.89	6.10	18.95	6.86	19.33	7.51
Male	14.62	5.80	17.45	6.10	17.69	7.44	17.83	7.68
Female	16.81	3.80	20.19	5.89	20.09	6.19	20.69	7.20
1st Quarter (Lowest)								
Total	11.13	3.80	13.27	5.55	14.00	6.32	13.53	6.75
Male	8.00	3.16	10.83	2.93	11.50	5.39	12.00	5.66
Female	13.22	2.59	14.89	6.41	15.67	6.63	14.56	7.54
2nd Quarter								
Total	14.60	4.07	17.73	4.45	16.80	5.61	17.27	6.31
Male	13.75	4.80	16.63	4.69	16.50	6.82	14.75	7.85
Female	15.57	3.10	19.00	4.12	17.14	4.34	20.14	1.68
3rd Quarter								
Total	17.44	4.38	20.38	5.41	20.00	6.53	19.88	7.03
Male	16.90	5.43	18.80	6.11	18.80	7.57	19.70	6.72
Female	18.33	1.75	23.00	2.76	22.00	4.15	20.17	8.18
4th Quarter (Highest)								
Total	19.80	2.78	24.07	3.28	24.93	3.71	26.60	2.38
Male	19.40	2.70	24.00	1.41	24.80	3.70	26.00	1.22
Female	20.00	2.94	24.10	3.98	25.00	3.92	26.90	2.81

Table 6.12. Tests of Significance (Repeated Measures ANOVA) of Differences in Educational Achievement for PACE Longitudinal Cohort 1: Cedarburg High School

Source	Sex(S)	Quarter(Q)	S X Q	Error	Gain(G)	G X S	G X Q	G X S X Q	Error
Comprehension									
Degrees of Freedom	1	3	3	53	3	3	9	9	159
Mean Square	275.61	1289.14	32.39	47.94	138.83	2.09	6.36	9.30	9.37
F	5.75	26.89	.68		14.82	.22	.68	.99	
P	.020	<.001	.571		<.001	.881	.727	.448	
Vocabulary									
Degrees of Freedom	1	3	3	53	3	3	9	9	159
Mean Square	206.88	1121.06	74.08	60.09	192.14	6.34	5.42	4.53	7.66
F	3.44	18.66	1.23		25.08	.83	.71	.59	
P	.069	<.001	.307		<.001	.481	.702	.803	
Reading Total									
Degrees of Freedom	1	3	3	53	3	3	9	9	159
Mean Square	248.49	1275.87	39.03	49.73	177.93	1.05	5.64	5.10	5.14
F	5.00	25.65	.78		34.59	.20	1.10	.99	
P	.030	<.001	.508		<.001	.893	.368	.450	
Usage									
Degrees of Freedom	1	3	3	53	3	3	9	9	159
Mean Square	466.13	809.33	23.00	45.82	118.73	9.30	4.17	10.72	7.20
F	10.17	17.66	.50		16.50	1.29	.58	1.49	
P	.002	<.001	.683		<.001	.279	.813	.156	
Spelling									
Degrees of Freedom	1	3	3	53	3	3	9	9	159
Mean Square	683.48	406.82	98.26	73.54	84.81	1.20	4.68	5.86	5.08
F	9.29	5.53	1.34		16.70	.24	.92	1.15	
P	.004	.002	.272		<.001	.871	.508	.328	

Table 6.12. (Continued):

Source	Sex(S)	Quarter(Q)	S X Q	Error	Gain(G)	G X S	G X Q	G X S X Q	Error
Language Total									
Degrees of Freedom	1	3	3	53	3	3	9	9	159
Mean Square	560.62	633.16	20.43	49.58	123.56	4.76	2.33	6.97	4.44
F	11.31	12.77	.41		27.82	1.07	.52	1.57	
P	.001	<.001	.745		<.001	.363	.855	.129	
Math									
Degrees of Freedom	1	3	3	53	3	3	9	9	159
Mean Square	18.78	1331.90	81.85	52.45	335.61	3.98	16.70	10.55	11.40
F	.36	25.39	1.56		29.46	.35	1.47	.93	
P	.552	<.001	.210		<.001	.790	.165	.504	
Social Studies									
Degrees of Freedom	1	3	3	53	3	3	9	9	159
Mean Square	57.77	1084.78	10.66	50.63	284.50	.61	9.35	10.01	9.77
F	1.14	21.43	.21		29.12	.06	.96	1.02	
P	.290	<.001	.889		<.001	.980	.478	.422	
Science									
Degrees of Freedom	1	3	3	53	3	3	9	9	159
Mean Square	73.43	1101.12	51.53	55.53	181.62	8.64	8.32	7.78	8.67
F	1.32	19.83	.93		20.94	1.00	.96	.90	
P	.255	<.001	.434		<.001	.396	.476	.529	
Use of Sources									
Degrees of Freedom	1	3	3	53	3	3	9	9	159
Mean Square	313.24	1248.71	29.32	64.49	166.90	.98	12.35	9.88	12.93
F	4.86	19.36	.45		12.91	.08	.96	.76	
P	.032	<.001	.715		<.001	.973	.479	.650	

Table 6.13. Mean Mental Ability and Mean Educational Achievement for PACE Longitudinal Cohort 2: Cedarburg High School

	Mental Ability			Comprehension					
				Grade 9		Grade 10		Grade 11	
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	87	115.00	10.79	14.57	3.59	17.05	4.52	18.80	4.53
Male	44	115.84	10.19	14.57	3.86	16.64	4.81	18.75	4.96
Female	43	114.14	11.43	14.58	3.33	17.47	4.23	18.86	4.10
1st Quarter (Lowest)									
Total	22	102.23	4.19	12.36	3.36	14.09	3.15	15.68	3.14
Male	9	102.00	3.39	11.67	3.87	12.44	1.24	15.33	2.40
Female	13	102.38	4.79	12.85	3.02	15.23	3.59	15.92	3.64
2nd Quarter									
Total	22	110.64	2.74	14.09	2.93	16.05	3.99	18.09	3.95
Male	10	110.20	2.66	13.90	3.67	15.50	5.06	17.20	4.66
Female	12	111.00	2.86	14.25	2.30	16.50	3.00	18.83	3.27
3rd Quarter									
Total	22	118.64	2.52	15.18	2.61	17.45	2.96	19.72	4.22
Male	13	118.69	2.63	14.85	2.64	17.15	3.48	19.23	4.94
Female	9	118.56	2.51	15.67	2.65	17.89	2.09	20.44	3.05
4th Quarter (Highest)									
Total	21	129.14	6.57	16.76	4.02	20.76	5.13	21.86	4.55
Male	12	127.83	5.69	17.00	3.86	20.17	5.06	22.08	4.85
Female	9	130.89	7.57	16.44	4.45	21.56	5.41	21.56	4.39

Table 6.13. (Continued):

	Vocabulary					
	Grade 9		Grade 10		Grade 11	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	15.08	4.37	16.07	4.67	19.37	4.37
Male	15.27	4.60	16.34	4.74	19.52	4.90
Female	14.88	4.16	15.79	4.64	19.21	3.81
1st Quarter (Lowest)						
Total	13.27	3.71	13.27	4.43	16.55	3.69
Male	12.56	2.46	14.56	3.36	15.78	4.02
Female	13.77	4.40	12.38	4.98	17.08	3.50
2nd Quarter						
Total	14.23	3.20	14.77	4.35	18.68	3.20
Male	15.00	3.20	13.20	4.83	17.90	3.81
Female	13.58	3.20	16.08	3.60	19.33	2.57
3rd Quarter						
Total	15.95	3.12	16.95	3.42	20.09	3.69
Male	16.23	3.24	17.54	3.57	20.31	4.07
Female	15.56	3.09	16.11	3.18	19.78	3.27
4th Quarter (Highest)						
Total	16.95	6.14	19.43	4.24	22.29	4.91
Male	16.50	7.05	19.00	5.06	22.83	5.06
Female	17.56	5.00	20.00	3.00	21.56	4.90

Table 6.13. (Continued):

	Reading Total					
	Grade 9		Grade 10		Grade 11	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	14.15	3.90	16.03	4.25	18.67	4.59
Male	14.32	3.74	15.93	4.41	18.77	5.02
Female	13.98	3.35	16.14	4.12	18.56	4.15
1st Quarter (Lowest)						
Total	12.18	2.91	13.27	2.86	15.45	3.17
Male	11.44	2.74	12.89	1.83	15.00	2.45
Female	12.69	3.01	13.54	3.45	15.77	3.66
2nd Quarter						
Total	13.31	2.71	14.95	3.44	17.86	3.67
Male	13.60	3.31	14.00	3.89	17.10	4.15
Female	13.08	2.23	15.75	2.96	18.50	3.26
3rd Quarter						
Total	14.77	2.27	16.32	3.08	19.68	3.94
Male	14.85	2.34	16.46	3.41	19.46	4.63
Female	14.67	2.29	16.11	2.71	20.00	2.92
4th Quarter (Highest)						
Total	16.43	4.57	19.76	4.71	21.81	5.01
Male	16.50	4.64	19.25	5.03	22.25	5.36
Female	16.33	4.74	20.44	4.45	21.22	4.94

Table 6.13. (Continued):

	Usage					
	Grade 9		Grade 10		Grade 11	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	16.14	3.97	17.55	3.86	19.30	4.26
Male	15.34	3.72	16.59	4.24	18.32	4.69
Female	16.95	4.10	18.53	3.19	20.30	3.56
1st Quarter (Lowest)						
Total	13.18	3.58	15.32	3.86	16.68	3.83
Male	11.78	3.53	13.00	4.06	15.00	4.82
Female	14.15	3.41	16.92	2.87	17.85	2.58
2nd Quarter						
Total	15.86	3.34	16.73	3.71	18.73	3.55
Male	14.90	2.92	15.60	4.70	17.10	3.90
Female	16.67	3.58	17.67	2.46	20.08	2.68
3rd Quarter						
Total	17.82	3.40	19.05	2.52	20.64	4.24
Male	16.23	2.59	18.15	1.95	19.62	4.57
Female	20.11	3.22	20.33	2.78	22.11	3.41
4th Quarter (Highest)						
Total	17.76	3.87	19.19	4.00	21.24	4.11
Male	17.42	3.82	18.42	4.27	20.42	4.08
Female	18.22	4.12	20.22	3.56	22.33	4.12

Table 6.13. (Continued):

	Spelling					
	Grade 9		Grade 10		Grade 11	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	15.39	5.01	17.11	5.36	19.22	4.84
Male	14.18	5.66	16.09	6.11	18.02	5.43
Female	16.63	3.93	18.16	4.29	20.44	3.83
1st Quarter (Lowest)						
Total	14.32	5.68	15.14	5.68	17.95	5.03
Male	12.67	7.78	12.89	6.97	15.56	6.37
Female	15.46	3.55	16.69	4.21	19.62	3.15
2nd Quarter						
Total	13.23	4.63	15.86	4.44	17.36	4.02
Male	10.50	3.72	14.40	4.45	15.10	2.77
Female	15.50	4.15	17.08	4.23	19.25	4.00
3rd Quarter						
Total	16.27	3.25	18.23	5.09	19.91	4.70
Male	15.15	3.39	17.15	5.97	19.08	5.35
Female	17.89	2.37	19.78	3.15	21.11	3.52
4th Quarter (Highest)						
Total	17.86	5.18	19.33	5.39	21.76	4.58
Male	17.33	5.60	18.75	5.94	21.17	4.86
Female	18.56	4.80	20.11	4.78	22.56	4.33

Table 6.13. (Continued):

	Language Total					
	Grade 9		Grade 10		Grade 11	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	15.85	3.88	17.60	4.24	19.59	4.39
Male	14.89	4.09	16.59	4.78	18.43	5.00
Female	16.84	3.42	18.63	3.37	20.77	3.31
1st Quarter (Lowest)						
Total	13.64	3.96	15.41	4.33	17.55	4.27
Male	12.11	4.91	13.00	5.12	15.44	5.62
Female	14.69	2.90	17.08	2.81	19.00	2.31
2nd Quarter						
Total	14.68	3.20	16.55	3.36	18.41	3.65
Male	12.90	2.81	15.30	3.89	16.30	3.30
Female	16.17	2.79	17.58	2.57	20.17	3.01
3rd Quarter						
Total	17.27	3.10	18.95	3.33	20.59	4.33
Male	15.92	2.93	18.00	3.49	19.62	4.84
Female	19.22	2.28	20.33	2.69	22.00	3.20
4th Quarter (Highest)						
Total	17.90	3.71	19.57	4.64	21.90	4.13
Male	17.50	3.68	18.83	4.95	21.17	4.39
Female	18.44	3.91	20.56	4.28	22.89	3.79

Table 6.13. (Continued):

	Math					
	Grade 9		Grade 10		Grade 11	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	14.03	4.46	16.56	5.44	18.99	5.54
Male	15.14	4.63	18.48	5.07	20.36	5.38
Female	12.91	4.03	14.60	5.15	17.58	5.40
1st Quarter (Lowest)						
Total	10.82	2.97	12.09	3.10	15.56	4.01
Male	10.89	2.37	13.00	3.24	17.00	2.60
Female	10.77	3.42	11.46	2.96	14.54	4.58
2nd Quarter						
Total	12.41	2.58	14.45	4.08	16.45	3.78
Male	13.50	2.37	16.90	3.45	17.40	4.53
Female	11.50	2.47	12.42	3.48	15.67	2.99
3rd Quarter						
Total	15.55	3.96	18.59	3.71	20.27	3.98
Male	16.15	4.60	20.15	3.31	21.62	3.69
Female	14.67	2.83	16.33	3.16	18.33	3.74
4th Quarter (Highest)						
Total	17.52	4.83	21.33	5.46	23.90	6.01
Male	18.58	4.54	22.08	5.18	24.00	6.56
Female	16.11	5.1[illegible]	20.33	5.98	23.78	5.56

Table 6.13. (Continued):

	Social Studies					
	Grade 9		Grade 10		Grade 11	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	12.98	4.05	16.56	4.44	17.98	4.76
Male	12.64	4.67	16.66	4.56	18.52	5.02
Female	13.33	3.34	16.47	4.36	17.42	4.46
1st Quarter (Lowest)						
Total	11.50	3.20	13.86	4.11	15.09	3.58
Male	10.00	2.35	11.89	1.76	14.22	1.99
Female	12.54	3.38	15.23	4.75	15.69	4.35
2nd Quarter						
Total	11.82	3.66	15.00	3.77	16.95	4.52
Male	11.90	4.63	15.50	3.75	17.60	4.43
Female	11.75	2.83	14.58	3.90	16.42	4.72
3rd Quarter						
Total	13.23	4.41	17.36	3.70	19.14	4.00
Male	12.08	4.89	17.23	3.81	19.38	4.46
Female	14.89	3.14	17.56	3.75	18.78	3.46
4th Quarter (Highest)						
Total	15.48	3.87	20.19	3.53	20.86	5.00
Male	15.83	4.45	20.58	3.82	21.58	5.57
Female	15.00	3.12	19.67	3.24	19.89	4.26

Table 6.13. (Continued):

	Science					
	Grade 9		Grade 10		Grade 11	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	15.92	4.57	19.94	4.22	20.25	3.81
Male	16.84	4.52	19.98	4.57	21.22	4.00
Female	14.98	4.47	19.91	3.88	19.26	3.37
1st Quarter (Lowest)						
Total	12.36	4.52	16.23	3.31	17.05	2.68
Male	12.78	5.02	14.67	2.69	17.11	2.47
Female	12.08	4.33	17.31	3.35	17.00	2.92
2nd Quarter						
Total	16.05	2.66	19.55	3.46	20.05	2.77
Male	16.70	2.91	19.60	3.20	20.70	3.06
Female	15.50	2.43	19.50	3.80	19.50	2.50
3rd Quarter						
Total	17.18	4.12	21.32	3.46	21.23	3.65
Male	18.54	2.57	22.00	4.12	22.85	2.88
Female	15.22	5.24	20.33	2.00	18.89	3.48
4th Quarter (Highest)						
Total	18.19	4.68	22.81	3.72	22.81	3.68
Male	18.17	5.34	22.08	4.06	23.00	4.55
Female	18.22	3.93	23.78	3.19	22.56	2.30

Table 6.13. (Continued):

	Use of Sources					
	Grade 9		Grade 10		Grade 11	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	16.94	5.01	17.30	4.89	19.54	4.90
Male	15.93	5.01	16.75	4.95	18.84	5.32
Female	17.98	4.84	17.86	4.82	20.26	4.37
1st Quarter (Lowest)						
Total	13.55	3.96	13.45	4.27	16.59	4.21
Male	11.22	2.22	11.22	1.99	15.22	3.56
Female	15.15	4.16	15.00	4.80	17.54	4.48
2nd Quarter						
Total	15.50	4.65	16.50	3.81	19.27	4.46
Male	14.30	4.72	16.00	2.91	17.90	4.28
Female	16.50	4.54	16.92	4.52	20.42	4.46
3rd Quarter						
Total	18.59	3.92	18.60	4.03	20.91	3.21
Male	17.23	3.88	17.92	4.42	20.08	3.01
Female	20.56	3.24	19.56	3.40	22.11	3.26
4th Quarter (Highest)						
Total	20.29	4.77	20.81	4.42	21.48	6.10
Male	19.42	4.93	20.25	4.90	21.00	7.62
Female	21.44	4.56	21.56	3.84	22.11	3.52

Table 6.14. Tests of Significance (Repeated Measures ANOVA) of Differences in Educational Achievement for PACE Longitudinal Cohort 2: Cedarburg High School

Source	Sex(S)	Quarter(Q)	S X Q	Error	Gain(G)	G X S	G X Q	G X S X Q	Error
Comprehension									
Degrees of Freedom	1	3	3	79	2	2	6	6	158
Mean Square	49.81	387.76	5.36	31.02	386.54	6.01	7.68	3.33	5.76
F	1.61	12.50	.17		67.09	1.04	1.33	.58	
P	.209	<.001	.914		<.001	.355	.245	.747	
Vocabulary									
Degrees of Freedom	1	3	3	79	2	2	6	6	158
Mean Square	.85	318.51	9.30	41.40	413.26	.22	6.77	19.00	4.62
F	.02	7.69	.22		89.39	.05	1.46	4.11	
P	.886	<.001	.879		<.001	.954	.194	.001	
Reading Total									
Degrees of Freedom	1	3	3	79	2	2	6	6	158
Mean Square	12.46	377.80	4.13	34.83	436.51	2.72	8.13	4.52	2.85
F	.36	10.85	.12		153.38	.95	2.86	1.59	
P	.551	<.001	.949		<.001	.387	.011	.154	
Usage									
Degrees of Freedom	1	3	3	79	2	2	6	6	158
Mean Square	373.03	321.78	7.48	28.18	208.96	.75	1.87	3.69	4.69
F	13.24	11.42	.27		44.59	.16	.40	.79	
P	<.001	<.001	.850		<.001	.853	.878	.581	
Spelling									
Degrees of Freedom	1	3	3	79	2	2	6	6	158
Mean Square	506.86	303.15	21.92	56.06	306.76	.66	4.38	3.31	5.24
F	9.04	5.41	.39		58.59	.13	.84	.63	
P	.004	.002	.760		<.001	.881	.543	.704	

Table 6.14. (Continued):

Source	Sex(S)	Quarter(Q)	S X Q	Error	Gain(G)	G X S	G X Q	G X S X Q	Error
Language Total									
Degrees of Freedom	1	3	3	79	2	2	6	6	158
Mean Square	453.82	313.39	11.56	34.44	291.52	.75	.86	2.80	3.05
F	13.18	9.10	.34		95.51	.25	.28	.92	
P	<.001	<.001	.800		<.001	.781	.945	.485	
Math									
Degrees of Freedom	1	3	3	79	2	2	6	6	158
Mean Square	284.61	774.20	10.09	36.86	534.91	10.65	10.35	7.89	6.02
F	7.72	21.00	.27		88.92	1.77	1.72	1.31	
P	.007	<.001	.844		<.001	.174	.119	.255	
Social Studies									
Degrees of Freedom	1	3	3	79	2	2	6	6	158
Mean Square	7.75	362.74	42.89	32.99	551.15	13.70	7.49	3.43	7.20
F	.23	11.00	1.30		76.54	1.90	1.04	.48	
P	.629	<.001	.280		<.001	.153	.402	.825	
Science									
Degrees of Freedom	1	3	3	79	2	2	6	6	158
Mean Square	30.50	425.03	43.49	26.50	490.09	28.44	3.19	1.56	5.85
F	1.15	16.04	1.64		83.84	4.87	.55	.27	
P	.287	<.001	.187		<.001	.009	.773	.952	
Use of Sources									
Degrees of Freedom	1	3	3	79	2	2	6	6	158
Mean Square	324.62	557.23	10.17	40.23	166.15	6.02	10.25	2.50	7.40
F	8.07	13.85	.25		22.46	.81	1.39	.34	
P	.006	<.001	.859		<.001	.445	.223	.916	

Table 6.15. Adjusted Means in Educational Achievement for PACE Longitudinal Cohorts 1 and 2: Cedarburg High School

	N	Comprehension	Vocabulary	Reading Total	Usage	Spelling	Language Total	Math	Social Studies	Science	Use of Sources
Cohort 1											
Total	61	17.55	17.35	17.03	16.95	16.92	17.09	16.39	16.52	18.02	17.66
Male	29	16.56	16.51	16.11	15.86	15.21	15.72	16.83	16.17	17.88	16.66
Female	32	18.45	18.12	17.87	17.94	18.47	18.32	15.99	16.85	18.14	18.57
Cohort 2											
Total	87	16.95	16.98	16.43	17.78	17.35	17.79	16.69	15.97	18.84	18.08
Male	44	16.57	16.96	16.25	16.68	16.04	16.57	17.90	15.86	19.27	17.09
Female	43	17.34	17.00	16.61	19.92	18.69	19.05	15.45	16.08	18.41	19.09

Table 6.16. Tests of Significance (ANCOVA) of Differences in Educational Achievement and Comparison of Gains for PACE Longituinal Cohort 1 and Cohort 2: Cedarburg High School

Source	Year(Y)	Sex(S)	S X Y	Covariate	Gain(G)	G X Y	G X S	G X Y X S	Error
Comprehension									
Degrees of Freedom	1	1	1	1	2	2	2	2	288
Mean Square	32.34	190.33	32.78	4466.64	521.66	7.55	.07	6.31	6.86
F	1.22	7.19	1.24	168.71	76.02	1.10	.01	.92	
P	.271	.008	.268	<.001	<.001	.334	.989	.400	
Vocabulary									
Degrees of Freedom	1	1	1	1	2	2	2	2	288
Mean Square	11.84	73.30	66.77	4338.33	354.77	84.47	5.90	3.26	5.51
F	.34	2.12	1.93	125.59	64.40	15.33	1.07	.59	
P	.559	.147	.167	<.001	<.001	<.001	.344	.544	
Reading Total									
Degrees of Freedom	1	1	1	1	2	2	2	2	288
Mean Square	33.36	121.22	53.60	4671.56	502.53	28.24	.56	3.41	3.36
F	1.20	4.37	1.93	168.26	149.54	8.40	.17	1.01	
P	.275	.038	.167	<.001	<.001	<.001	.848	.364	
Usage									
Degrees of Freedom	1	1	1	1	2	2	2	2	288
Mean Square	86.97	500.19	.83	3370.51	279.47	19.06	1.84	3.48	4.78
F	3.78	21.76	.04	146.62	58.49	3.99	.38	.73	
P	.054	<.001	.849	<.001	<.001	.020	.681	.484	
Spelling									
Degrees of Freedom	1	1	1	1	2	2	2	2	288
Mean Square	29.06	938.44	9.87	2435.16	314.07	32.62	.71	.25	4.62
F	.58	18.87	.20	48.96	68.04	7.07	.15	.06	
P	.446	<.001	.657	<.001	<.001	<.001	.857	.946	

Table 6.16. (Continued):

Source	Year(Y)	Sex(S)	S X Y	Covariate	Gain(G)	G X Y	G X S	G X Y X S	Error
Language Total									
Degrees of Freedom	1	1	1	1	2	2	2	2	288
Mean Square	67.20	693.38	.28	3087.47	340.35	24.71	2.13	.83	2.86
F	2.42	24.93	.01	111.02	119.20	8.65	.75	.29	
P	.122	<.001	.9[illegible]	<.001	<.001	<.001	.475	.748	
Math									
Degrees of Freedom	1	1	1	1	2	2	2	2	288
Mean Square	7.27	291.30	68.97	5521.51	862.36	13.03	2.70	15.84	7.94
F	.23	9.13	2.16	172.98	108.63	1.64	.34	2.00	
P	.634	.003	.144	<.001	<.001	.196	.712	.138	
Social Studies									
Degrees of Freedom	1	1	1	1	2	2	2	2	288
Mean Square	29.96	21.78	5.23	3945.25	756.68	15.92	5.38	10.06	7.71
F	1.02	.74	.18	134.54	98.19	2.07	.70	1.30	
P	.314	.390	.673	<.001	<.001	.129	.498	.273	
Science									
Degrees of Freedom	1	1	1	1	2	2	2	2	288
Mean Square	73.02	9.66	33.49	4132.91	721.68	33.50	4.43	21.27	6.19
F	2.85	.38	1.31	161.18	116.55	5.41	.72	3.43	
P	.094	.540	.255	<.001	<.001	.005	.490	.034	
Use of Sources									
Degrees of Freedom	1	1	1	1	2	2	2	2	288
Mean Square	23.74	410.60	.16	4686.60	301.78	75.24	.49	4.94	8.53
F	.65	11.27	.01	128.69	35.36	8.82	.06	.58	
P	.421	<.001	.947	<.001	<.001	<.001	.945	.561	

Table 6.17. Mean Mental Ability and Mean Educational Achievement for Four Successive Grade 9 Traditional Groups: Cedarburg High School

	Mental Ability			Comprehension		Vocabulary		Reading Total		Usage		Spelling	
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1977-78													
Total	173	112.03	11.51	13.46	4.67	14.20	5.08	13.23	4.21	13.85	4.40	12.02	5.20
Male	102	112.15	12.47	13.25	4.51	14.15	4.93	13.07	4.07	13.16	4.69	11.09	5.07
Female	71	111.86	10.06	13.76	4.90	14.27	5.32	13.46	4.42	14.85	3.74	13.35	5.12
1978-79													
Total	158	113.91	10.45	13.77	4.16	15.59	4.51	14.07	3.80	15.53	4.14	13.94	5.01
Male	69	113.65	11.40	13.06	4.39	15.71	4.51	13.81	4.00	14.32	3.73	12.57	5.19
Female	89	114.11	9.72	14.31	3.91	15.51	4.53	14.27	3.66	16.46	4.22	15.00	4.62
1979-80													
Total	171	112.86	11.46	14.46	3.97	14.06	4.58	13.66	3.68	14.82	3.73	13.74	4.86
Male	84	112.63	11.63	13.99	3.54	13.83	5.03	13.32	3.57	13.65	3.42	12.12	3.96
Female	87	113.08	11.35	14.92	4.31	14.29	4.10	13.99	3.77	15.95	3.69	15.31	5.14
1980-81													
Total	143	114.30	13.44	14.24	4.80	15.50	4.89	14.30	4.51	13.83	4.82	14.62	5.61
Male	71	113.63	14.04	13.76	4.91	15.20	4.59	13.89	4.34	12.70	4.91	13.17	5.66
Female	72	114.96	12.88	14.72	4.68	15.79	5.19	14.71	4.67	14.93	4.51	16.04	5.22

	Language Total		Math		Social Studies		Science		Use of Sources	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1977-78										
Total	13.04	4.31	12.78	4.83	12.53	4.48	14.07	5.35	13.40	5.24
Male	12.24	4.39	13.24	4.96	12.54	4.50	14.50	5.47	13.11	5.21
Female	14.20	3.94	12.13	4.59	12.52	4.47	13.45	5.15	13.83	5.29
1978-79										
Total	14.92	4.03	13.09	3.99	12.67	3.82	14.70	4.84	16.36	4.75
Male	13.59	3.77	13.78	4.62	12.94	4.05	15.09	5.05	15.52	4.96
Female	15.94	3.94	12.55	3.35	12.46	3.63	14.40	4.68	17.01	4.50
1979-80										
Total	14.40	3.82	12.64	4.41	12.97	3.97	16.09	4.56	16.39	5.51
Male	12.99	3.16	12.99	4.38	12.70	4.16	16.24	4.96	15.77	5.58
Female	15.76	3.92	12.31	4.44	13.23	3.78	15.94	4.16	16.98	5.41
1980-81										
Total	14.30	5.07	13.41	4.83	13.65	4.25	14.56	5.70	16.39	5.37
Male	12.93	5.19	13.85	5.21	13.30	4.28	14.90	5.97	15.03	5.64
Female	15.65	4.59	12.97	4.42	14.00	4.22	14.22	5.44	17.74	4.75

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Table 6.18. Mean Mental Ability and Mean Educational Achievement for Three Successive Grade 10 Traditional Groups: Cedarburg High School

	Mental Ability			Comprehension		Vocabulary		Reading Total		Usage		Spelling	
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1978-79													
Total	162	112.08	11.83	14.99	4.97	16.25	5.02	15.08	4.70	15.28	5.41	14.57	5.28
Male	95	112.63	12.67	15.05	4.83	16.61	4.59	15.24	4.53	14.37	5.77	13.73	5.54
Female	67	111.30	10.56	14.91	5.18	15.73	5.56	14.85	4.97	16.58	4.58	15.78	4.65
1979-80													
Total	150	113.58	10.58	16.32	4.85	16.24	4.58	15.73	4.46	16.68	3.86	15.67	4.55
Male	64	113.42	11.16	15.97	4.86	16.09	4.84	15.56	4.52	15.98	3.71	14.41	4.17
Female	86	113.70	10.20	16.58	4.85	16.35	4.39	15.86	4.43	17.20	3.91	16.60	4.61
1980-81													
Total	166	112.99	11.44	15.33	4.52	16.86	4.42	15.55	4.32	16.12	4.74	15.63	5.68
Male	82	112.44	11.77	13.94	4.46	16.52	4.61	14.59	4.35	14.48	4.09	13.52	5.37
Female	84	113.52	11.16	16.69	4.17	17.18	4.24	16.49	4.10	17.73	4.81	17.68	5.23

	Language Total		Math		Social Studies		Science		Use of Sources	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1978-79										
Total	15.00	5.00	14.76	5.25	14.10	5.10	16.42	5.52	14.62	5.88
Male	14.07	5.40	15.51	5.28	14.58	5.11	17.05	5.50	14.08	6.30
Female	16.31	4.05	13.70	5.07	13.42	5.05	15.52	5.47	15.46	5.16
1979-80										
Total	16.35	3.82	14.92	5.32	15.23	4.90	18.48	4.64	16.52	4.93
Male	15.36	3.40	15.70	6.10	15.22	5.26	19.28	5.05	16.34	5.24
Female	17.09	3.97	14.34	4.61	15.23	4.65	17.88	4.24	16.65	4.71
1980-81										
Total	16.07	4.89	14.56	4.52	15.27	4.82	16.42	4.92	16.14	5.65
Male	14.16	4.19	14.82	4.72	14.83	4.99	16.33	5.22	15.29	6.40
Female	17.93	4.83	14.31	4.33	15.70	4.64	16.50	4.63	16.98	4.69

Table 6.19. Mean Mental Ability and Mean Educational Achievement for Two Successive Grade 11 Traditional Groups: Cedarburg High School

	Mental Ability			Comprehension		Vocabulary		Reading Total		Usage		Spelling	
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1979-80													
Total	154	111.64	11.57	15.40	5.47	15.88	5.47	15.21	5.15	14.29	5.73	15.49	5.87
Male	95	111.97	12.20	14.99	5.59	15.72	5.55	14.95	5.21	13.43	5.73	14.39	6.18
Female	59	111.12	10.57	16.05	5.25	16.14	5.37	15.63	5.06	15.66	5.50	17.25	4.90
1980-81													
Total	138	113.94	10.62	17.38	5.06	19.03	4.64	17.80	4.82	18.12	4.81	18.07	5.04
Male	58	113.34	11.29	17.19	5.89	18.76	5.00	17.62	5.58	16.62	4.95	16.22	4.80
Female	80	114.38	10.16	17.53	4.39	19.23	4.38	17.93	4.22	19.20	4.42	19.41	4.81

	Language Total		Math		Social Studies		Science		Use of Sources	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1979-80										
Total	14.96	5.29	14.53	6.65	14.65	6.14	17.31	6.57	14.47	6.72
Male	13.97	5.57	14.97	6.71	14.53	6.27	17.27	7.03	13.53	6.86
Female	16.56	4.41	13.81	6.55	14.85	5.96	17.36	5.82	16.00	6.25
1980-81										
Total	18.43	4.67	16.49	5.49	16.81	4.79	18.86	5.49	18.06	5.94
Male	16.74	4.62	16.74	6.47	17.00	5.64	19.83	6.37	16.72	6.44
Female	19.65	4.34	16.30	4.70	16.68	4.11	18.16	4.67	19.03	5.38

Table 6.20. Adjusted Means in Educational Achievement for Four Successive Grade 9 Traditional Groups: Cedarburg High School

	N	Comprehension	Vocabulary	Reading Total	Usage	Spelling	Language Total	Math	Social Studies	Science	Use of Sources
1977-78											
Total	173	13.72	14.49	13.50	14.11	12.26	13.30	13.08	12.76	14.38	13.72
Male	102	13.48	14.41	13.31	13.39	11.30	12.47	13.51	12.75	14.77	13.40
Female	71	14.06	14.61	13.77	15.15	13.63	14.50	12.48	12.78	13.80	14.20
1978-79											
Total	158	13.61	15.42	13.91	15.37	13.80	14.76	12.91	12.54	14.52	16.17
Male	69	12.96	15.60	13.71	14.22	12.48	13.50	13.67	12.86	14.97	15.40
Female	89	14.12	15.28	14.07	16.26	14.82	15.75	12.32	12.29	14.17	16.77
1979-80											
Total	171	14.54	14.15	13.74	14.90	13.81	14.48	12.73	13.04	16.18	16.48
Male	84	14.11	13.98	13.45	13.78	12.24	13.12	13.14	12.81	16.39	15.93
Female	87	14.95	14.32	14.02	15.98	15.34	15.79	12.34	13.26	15.98	17.01
1980-81											
Total	143	14.01	15.22	14.05	13.58	14.40	14.06	13.13	13.44	14.28	16.10
Male	71	13.67	15.09	13.79	12.61	13.08	12.84	13.74	13.21	14.79	14.91
Female	72	14.34	15.35	14.31	14.54	15.69	15.27	12.52	13.66	13.77	17.27

Table 6.21. Tests of Significance (ANCOVA) of Differences in Educational Achievement for Four Successive Grade 9 Traditional Groups: Cedarburg High School

Source	Covariate	Year(Y)	Sex(S)	Y X S	Residual	Total
Comprehension						
Degrees of Freedom	1	3	1	3	636	644
Mean Square	4157.22	29.90	104.01	2.54	12.76	19.44
F	325.84	2.34	8.15	.20		
P	<.001	.072	.004	.897		
Vocabulary						
Degrees of Freedom	1	3	1	3	636	644
Mean Square	5552.87	58.20	2.23	3.52	14.17	23.16
F	391.93	4.11	.16	.25		
P	<.001	.007	.691	.863		
Reading Total						
Degrees of Freedom	1	3	1	3	636	644
Mean Square	4522.31	7.36	35.76	.33	9.33	16.49
F	484.60	.79	3.83	.04		
P	<.001	.501	.051	.991		
Usage						
Degrees of Freedom	1	3	1	3	636	644
Mean Square	4341.80	80.38	621.30	1.49	10.47	18.66
F	415.23	7.69	59.42	.14		
P	<.001	<.001	<.001	.935		
Spelling						
Degrees of Freedom	1	3	1	3	636	644
Mean Square	3583.02	102.33	1064.27	5.51	19.35	27.43
F	185.14	5.29	54.99	.29		
P	<.001	<.001	<.001	.836		

Table 6.21. (Continued):

Source	Covariate	Year(Y)	Sex(S)	Y X S	Residual	Total
Language Total						
Degrees of Freedom	1	3	1	3	636	644
Mean Square	4244.88	41.98	870.35	3.15	10.46	18.92
F	405.98	4.02	83.24	.30		
P	<.001	.008	<.001	.824		
Math						
Degrees of Freedom	1	3	1	3	636	644
Mean Square	5795.66	4.23	190.86	2.36	11.28	20.47
F	513.72	.38	16.92	.21		
P	<.001	.771	<.001	.890		
Social Studies						
Degrees of Freedom	1	3	1	3	636	644
Mean Square	3274.89	21.10	1.26	8.97	12.06	17.23
F	271.56	1.75	.10	.74		
P	<.001	.156	.747	.526		
Science						
Degrees of Freedom	1	3	1	3	636	644
Mean Square	5867.59	138.12	101.96	3.16	16.99	26.62
F	345.31	8.13	6.00	.19		
P	<.001	<.001	.015	.906		
Use of Sources						
Degrees of Freedom	1	3	1	3	636	644
Mean Square	6378.31	247.99	310.31	17.16	16.83	28.94
F	378.97	14.74	18.44	1.02		
P	<.001	<.001	<.001	.383		

Table 6.22. Adjusted Means in Educational Achievement for Three Successive Grade 10 Traditional Groups: Cedarburg High School

	N	Comprehension	Vocabulary	Reading Total	Usage	Spelling	Language Total	Math	Social Studies	Science	Use of Sources
1978-79											
Total	162	15.19	16.44	15.28	15.48	14.73	15.19	14.99	14.28	16.62	14.87
Male	95	15.11	16.67	15.30	14.43	13.77	14.13	15.58	14.63	17.11	14.15
Female	67	15.30	16.11	15.25	16.98	16.10	16.69	14.17	13.79	15.93	15.90
1979-80											
Total	150	16.14	16.07	15.55	16.50	15.52	16.18	14.71	15.06	18.29	16.32
Male	64	15.83	15.96	15.42	15.84	14.29	15.23	15.54	15.09	19.14	16.19
Female	86	16.38	16.15	15.65	16.99	16.44	16.89	14.09	15.04	17.67	16.42
1980-81											
Total	166	15.30	16.83	15.52	16.09	15.60	16.04	14.52	15.24	16.38	16.11
Male	82	14.04	16.63	14.69	14.58	13.61	14.26	14.94	14.93	16.44	15.41
Female	84	16.53	17.02	16.32	17.56	17.54	17.77	14.11	15.54	16.33	16.79

Table 6.23. Tests of Significance (ANCOVA) of Differences in Educational Achievement for Three Grade 10 Traditional Groups: Cedarburg High School

Source	Covariate	Year(Y)	Sex(S)	Y X S	Residual	Total
Comprehension						
Degrees of Freedom	1	2	1	2	471	477
Mean Square	3669.29	37.40	134.59	61.77	14.54	23.05
F	252.36	2.58	9.26	4.25		
P	<.001	.077	.002	.015		
Vocabulary						
Degrees of Freedom	1	2	1	2	471	477
Mean Square	3491.58	23.32	.01	10.00	14.56	21.89
F	239.80	1.60	<.001	.69		
P	<.001	.203	.982	.504		
Reading Total						
Degrees of Freedom	1	2	1	2	471	477
Mean Square	3926.25	3.15	42.30	32.68	11.71	20.21
F	335.22	.27	3.61	2.79		
P	<.001	.764	.058	.062		
Usage						
Degrees of Freedom	1	2	1	2	471	477
Mean Square	3850.64	19.32	579.36	35.18	12.95	22.62
F	297.34	1.49	44.74	2.72		
P	<.001	.226	<.001	.067		
Spelling						
Degrees of Freedom	1	2	1	2	471	477
Mean Square	2527.16	17.14	917.99	38.95	19.73	27.26
F	128.07	.87	46.52	1.97		
P	<.001	.420	<.001	.140		

Table 6.23. (Continued):

Source	Covariate	Year(Y)	Sex(S)	Y X S	Residual	Total
Language Total						
Degrees of Freedom	1	2	1	2	471	477
Mean Square	3460.91	20.65	779.37	33.17	12.29	21.61
F	281.61	1.68	63.42	2.70		
P	<.001	.187	<.001	.068		
Math						
Degrees of Freedom	1	2	1	2	471	477
Mean Square	5378.81	5.44	176.84	4.78	13.68	25.24
F	393.28	.40	12.93	.35		
P	<.001	.672	<.001	.71		
Social Studies						
Degrees of Freedom	1	2	1	2	471	477
Mean Square	3365.97	47.83	1.03	21.63	17.31	24.63
F	194.41	2.76	.06	1.25		
P	<.001	.064	.808	.288		
Science						
Degrees of Freedom	1	2	1	2	471	477
Mean Square	4129.65	192.31	99.49	20.38	16.59	26.30
F	248.90	11.59	6.00	1.23		
P	<.001	<.001	.015	.294		
Use of Sources						
Degrees of Freedom	1	2	1	2	471	477
Mean Square	4680.54	73.42	147.15	23.65	20.32	30.94
F	230.30	3.61	7.24	1.16		
P	<.001	.028	.007	.313		

Table 6.24. Adjusted Means in Educational Achievement for Two Successive Grade 11 Traditional Groups: Cedarburg High School

	N	Comprehension	Vocabulary	Reading Total	Usage	Spelling	Language Total	Math	Social Studies	Science	Use of Sources
1979-80											
Total	154	15.68	16.17	15.51	14.55	15.70	14.53	14.91	14.91	17.59	14.77
Male	95	15.19	15.92	15.16	13.61	14.54	13.60	15.24	14.71	17.47	13.74
Female	59	16.48	16.57	16.08	16.05	17.57	16.03	14.39	15.23	17.78	16.44
1980-81											
Total	138	17.06	18.70	17.46	17.82	17.83	17.84	16.06	16.52	18.54	17.72
Male	58	17.03	18.59	17.45	16.47	16.10	16.48	16.52	16.85	19.67	16.55
Female	80	17.09	18.78	17.46	18.81	19.09	18.83	15.72	16.28	17.73	18.57

Table 6.25. Tests of Significance(ANCOVA) of Differences in Educational Achievement for Two Successive Grade 11 Traditional Groups: Cedarburg High School

Source	Covariate	Year(Y)	Sex(S)	Y X S	Residual	Total
Comprehension						
Degrees of Freedom	1	1	1	1	287	291
Mean Square	2520.88	103.51	31.80	26.15	19.21	28.75
F	131.26	5.39	1.66	1.36		
P	<.001	.021	.199	.244		
Vocabulary						
Degrees of Freedom	1	1	1	1	287	291
Mean Square	2573.21	413.86	12.27	3.64	17.19	28.33
F	149.69	24.08	.71	.21		
P	<.001	<.001	.399	.646		
Reading Total						
Degrees of Freedom	1	1	1	1	287	291
Mean Square	2836.18	232.79	15.23	14.26	15.29	26.57
F	185.52	15.23	1.00	.93		
P	<.001	<.001	.319	.335		
Usage						
Degrees of Freedom	1	1	1	1	287	291
Mean Square	2066.41	545.57	396.90	.18	19.90	31.79
F	103.82	27.41	19.94	.01		
P	<.001	<.001	<.001	.925		
Spelling						
Degrees of Freedom	1	1	1	1	287	291
Mean Square	1420.77	163.13	632.79	.05	23.36	31.80
F	60.82	6.98	27.09	<.01		
P	<.001	.009	<.001	.965		

Table 6.25. (Continued):

Source	Covariate	Year(Y)	Sex(S)	Y X S	Residual	Total
Language Total						
Degrees of Freedom	1	1	1	1	287	291
Mean Square	1830.40	401.38	520.79	.20	17.13	28.01
F	106.85	23.43	30.40	.01		
P	<.001	<.001	<.001	.914		
Math						
Degrees of Freedom	1	1	1	1	287	291
Mean Square	4532.81	118.07	48.18	.04	22.02	38.45
F	205.81	5.36	2.19	<.01		
P	<.001	.021	.140	.968		
Social Studies						
Degrees of Freedom	1	1	1	1	287	291
Mean Square	2062.64	176.06	.04	20.99	23.83	31.79
F	86.54	7.39	<.01	.88		
P	<.001	.007	.968	.349		
Science						
Degrees of Freedom	1	1	1	1	287	291
Mean Square	2454.96	79.85	46.44	87.47	28.55	37.52
F	86.00	2.80	1.63	3.06		
P	<.001	.096	.203	.081		
Use of Sources						
Degrees of Freedom	1	1	1	1	287	291
Mean Square	2735.89	422.70	390.14	8.35	29.96	43.54
F	91.33	14.11	13.02	.28		
P	<.001	<.001	<.001	.598		

Table 6.26. Mean Mental Ability and Mean Educational Achievement for Traditional Longitudinal Cohort 1: Cedarburg High School

	Mental Ability			Comprehension							
				Grade 9		Grade 10		Grade 11		Grade 12	
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	122	111.97	11.74	13.52	4.90	15.23	5.03	15.96	5.48	16.31	6.64
Male	73	111.89	12.33	13.15	4.65	15.01	4.74	15.59	5.45	15.67	6.83
Female	49	112.08	10.92	14.08	5.26	15.55	5.45	16.51	5.53	17.27	6.29
1st Quarter (Lowest)											
Total	30	97.90	5.02	10.40	3.40	11.73	3.73	13.30	4.48	12.20	5.14
Male	20	97.50	5.82	9.80	3.79	11.90	4.25	12.80	4.83	12.20	5.65
Female	10	98.70	2.95	11.60	2.17	11.40	2.55	14.30	3.71	12.20	4.21
2nd Quarter											
Total	31	107.00	2.05	11.71	4.07	13.51	4.23	14.39	3.90	14.74	5.46
Male	17	107.06	2.11	11.76	3.05	12.82	3.11	13.53	3.68	13.12	4.97
Female	14	106.93	2.06	11.64	5.17	14.36	5.30	15.43	4.03	16.71	5.55
3rd Quarter											
Total	31	115.35	2.36	13.80	3.75	15.26	3.43	14.74	4.59	15.90	5.52
Male	16	116.19	2.34	13.56	3.29	15.38	3.01	14.75	4.40	15.69	6.05
Female	15	114.47	2.10	14.07	4.28	15.13	3.93	14.73	4.93	16.13	5.10
4th Quarter (Highest)											
Total	30	127.67	6.40	18.23	4.50	20.47	4.07	21.50	4.94	22.47	5.95
Male	20	126.95	6.37	17.35	4.34	19.70	3.76	20.80	4.64	21.30	6.56
Female	10	129.10	6.56	20.00	4.52	22.00	4.45	22.90	5.47	24.80	3.77

Table 6.26. (Continued):

	Vocabulary							
	Grade 9		Grade 10		Grade 11		Grade 12	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	14.43	5.19	16.74	4.77	16.30	5.48	17.89	6.68
Male	14.30	4.87	16.92	4.19	16.03	5.57	17.30	7.07
Female	14.61	5.69	16.47	5.55	16.71	5.39	18.78	5.99
1st Quarter (Lowest)								
Total	10.47	4.52	13.10	4.80	12.07	4.89	13.30	5.47
Male	10.80	4.76	13.70	3.92	11.95	5.02	12.75	5.78
Female	9.80	4.13	11.90	6.28	12.30	4.88	14.40	4.90
2nd Quarter								
Total	13.45	4.03	15.84	2.82	15.32	4.54	16.97	5.49
Male	13.24	3.65	15.53	2.62	15.06	4.29	15.82	5.85
Female	13.71	4.58	16.21	3.09	15.64	4.97	18.36	4.85
3rd Quarter								
Total	14.39	3.70	16.42	3.17	16.61	4.22	17.42	6.56
Male	14.19	3.54	17.00	2.45	15.94	4.65	16.75	7.33
Female	14.60	3.98	15.80	3.78	17.33	3.74	18.13	5.79
4th Quarter (Highest)								
Total	19.43	4.24	21.63	3.69	21.23	4.11	23.93	4.43
Male	18.80	3.27	21.25	2.84	21.00	3.91	23.55	4.45
Female	20.70	5.71	22.40	5.08	21.70	4.67	24.70	4.50

Table 6.26. (Continued):

	Reading Total							
	Grade 9		Grade 10		Grade 11		Grade 12	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	13.37	4.41	15.39	4.71	15.70	5.22	16.93	6.47
Male	13.10	4.10	15.33	4.42	15.40	5.20	16.38	6.75
Female	13.78	4.85	15.49	5.15	16.14	5.26	17.73	6.00
1st Quarter (Lowest)								
Total	10.20	2.75	11.83	3.43	12.17	3.66	12.43	4.67
Male	9.95	3.17	12.15	3.47	11.95	3.94	12.25	5.17
Female	10.70	1.64	11.20	3.46	12.60	3.17	12.80	3.68
2nd Quarter								
Total	11.84	3.15	13.84	3.30	14.35	3.73	15.48	5.34
Male	11.82	2.24	13.24	2.44	13.76	3.49	14.12	5.16
Female	11.86	4.09	14.57	4.09	15.07	4.00	17.14	5.26
3rd Quarter								
Total	13.29	2.42	15.19	2.83	15.19	4.03	16.52	5.52
Male	13.06	2.14	15.38	2.66	14.94	4.09	16.25	6.31
Female	13.53	2.75	15.00	3.09	15.47	4.09	16.80	4.74
4th Quarter (Highest)								
Total	18.20	4.50	20.77	3.93	21.13	4.83	23.33	5.11
Male	17.35	3.87	20.25	3.37	20.60	4.48	22.55	5.43
Female	19.90	5.36	21.80	4.89	22.20	5.57	24.90	4.20

Table 6.26. (Continued):

	Usage							
	Grade 9		Grade 10		Grade 11		Grade 12	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	13.84	4.54	15.63	5.31	14.92	5.75	15.80	6.61
Male	13.16	4.77	14.34	5.66	13.92	5.78	14.96	6.61
Female	14.84	4.03	17.55	4.10	16.41	5.42	17.04	6.48
1st Quarter (Lowest)								
Total	10.47	4.00	11.80	3.68	11.93	4.29	12.17	5.40
Male	9.25	4.20	10.90	3.91	10.55	3.15	11.95	4.84
Female	12.90	2.08	13.60	2.46	14.70	5.06	12.60	6.64
2nd Quarter								
Total	13.23	4.60	14.32	4.86	13.48	4.82	14.90	5.08
Male	12.41	4.30	11.65	3.87	12.12	4.09	13.00	4.21
Female	14.21	4.90	17.57	3.92	15.14	5.26	17.21	5.21
3rd Quarter								
Total	14.19	3.45	15.87	4.51	13.87	5.69	15.10	6.49
Male	14.13	3.86	14.13	4.92	13.06	6.55	13.69	7.36
Female	14.27	3.08	17.73	3.22	14.73	4.68	16.60	5.23
4th Quarter (Highest)								
Total	17.47	3.17	20.57	4.07	20.47	4.17	21.07	6.27
Male	16.95	2.93	20.25	4.33	19.50	4.51	20.65	5.99
Female	18.50	3.54	21.20	3.61	22.40	2.59	21.90	7.06

Table 6.26. (Continued):

	Spelling							
	Grade 9		Grade 10		Grade 11		Grade 12	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	12.30	5.33	14.56	5.27	16.02	5.99	16.02	6.09
Male	11.32	4.98	13.64	5.39	14.84	6.36	14.70	6.24
Female	13.76	5.53	15.92	4.82	17.78	4.93	18.00	5.32
1st Quarter (Lowest)								
Total	9.37	4.03	11.23	4.50	13.07	4.70	12.17	4.40
Male	8.60	4.25	10.50	5.23	12.00	5.06	11.40	4.80
Female	10.90	3.21	12.70	1.95	15.20	3.12	13.70	3.13
2nd Quarter								
Total	10.71	4.37	12.84	3.98	14.52	4.61	14.48	4.63
Male	10.24	4.34	11.88	4.01	13.12	5.33	13.18	4.36
Female	11.29	4.50	14.00	3.76	16.21	2.91	16.07	4.60
3rd Quarter								
Total	13.03	4.54	15.35	4.64	16.26	6.41	16.74	6.71
Male	11.44	4.49	13.94	4.34	14.63	6.82	14.13	7.48
Female	14.73	4.08	16.87	4.61	18.00	5.66	19.53	4.52
4th Quarter (Highest)								
Total	16.10	5.82	18.83	4.76	20.27	5.72	20.73	5.00
Male	14.85	4.73	18.05	4.55	19.30	5.93	19.75	4.87
Female	18.60	7.18	20.40	5.04	22.20	5.01	22.70	4.92

Table 6.26. (Continued):

	Language Total							
	Grade 9		Grade 10		Grade 11		Grade 12	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	13.19	4.11	15.18	4.99	15.54	5.34	16.01	6.13
Male	12.37	4.33	14.03	5.20	14.45	5.65	14.89	6.42
Female	14.41	4.29	16.90	4.14	17.16	4.41	17.67	5.30
1st Quarter (Lowest)								
Total	9.93	3.55	11.37	3.60	12.50	4.13	12.07	4.62
Male	8.95	3.75	10.50	3.98	11.25	3.80	11.55	4.61
Female	11.90	2.13	13.10	1.79	15.00	3.74	13.10	4.70
2nd Quarter								
Total	12.10	3.74	13.84	3.82	14.16	4.08	14.65	5.03
Male	11.47	3.18	11.94	3.27	12.76	3.77	12.88	4.26
Female	12.86	4.31	16.14	3.18	15.86	3.92	16.79	5.21
3rd Quarter								
Total	13.74	3.36	15.58	4.24	15.06	5.18	16.10	5.85
Male	12.94	3.45	14.00	4.43	13.94	6.39	14.06	7.19
Female	14.60	3.14	17.27	3.41	16.27	3.28	18.27	2.87
4th Quarter (Highest)								
Total	17.00	3.86	19.97	4.04	20.50	4.41	21.27	5.21
Male	16.10	3.32	19.35	3.90	19.50	4.67	20.60	5.36
Female	18.80	4.39	21.20	4.24	22.50	3.14	22.60	4.86

Table 6.26. (Continued):

	Math							
	Grade 9		Grade 10		Grade 11		Grade 12	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	12.76	4.82	14.98	5.40	15.11	6.79	16.24	6.83
Male	12.85	4.84	15.29	5.39	15.49	6.77	16.94	7.08
Female	12.63	4.85	14.53	5.44	14.55	6.86	15.86	6.49
1st Quarter (Lowest)								
Total	9.00	3.61	11.70	4.18	9.97	5.38	11.83	5.09
Male	8.85	3.50	11.65	4.27	10.10	5.47	11.55	4.95
Female	9.30	4.00	11.80	4.21	9.70	5.48	12.40	5.60
2nd Quarter								
Total	11.32	3.43	12.90	4.28	13.71	4.52	14.35	4.60
Male	11.71	2.89	13.41	3.81	14.18	4.35	15.06	4.64
Female	10.86	4.05	12.29	4.86	13.14	4.82	13.50	4.57
3rd Quarter								
Total	13.19	3.95	14.58	4.52	14.90	6.67	15.48	6.27
Male	13.69	4.31	15.38	5.23	16.00	6.79	16.06	7.52
Female	12.67	3.60	13.73	3.61	13.73	6.56	14.87	4.76
4th Quarter (Highest)								
Total	17.57	3.85	20.83	3.60	21.93	4.31	23.37	5.39
Male	17.15	4.08	20.45	3.62	21.60	4.43	23.00	5.51
Female	18.40	3.37	21.60	3.63	22.60	4.22	24.10	5.36

Table 6.26. (Continued):

	Social Studies							
	Grade 9		Grade 10		Grade 11		Grade 12	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	12.81	4.46	14.37	4.96	15.34	6.15	16.00	7.39
Male	12.73	4.20	14.59	4.86	15.32	6.23	15.67	7.87
Female	12.94	4.85	14.04	5.15	15.37	6.09	16.49	6.67
1st Quarter (Lowest)								
Total	10.10	2.58	11.47	4.20	12.13	5.06	11.73	6.58
Male	9.95	2.78	11.25	4.72	11.80	5.64	11.00	7.00
Female	10.40	2.22	11.90	3.07	12.80	3.85	13.20	5.67
2nd Quarter								
Total	11.52	3.50	12.68	4.04	14.77	4.22	14.90	6.45
Male	11.18	2.51	13.00	2.67	14.29	4.15	14.47	6.87
Female	11.93	4.50	12.29	5.34	15.35	4.38	15.43	6.11
3rd Quarter								
Total	12.19	3.14	13.87	3.64	13.81	5.75	15.00	6.70
Male	12.75	3.42	14.56	3.44	14.93	6.22	14.63	7.02
Female	11.60	2.80	13.13	3.81	12.60	5.12	15.40	6.57
4th Quarter (Highest)								
Total	17.50	4.56	19.53	3.88	20.70	6.04	22.43	5.59
Male	16.80	4.11	19.30	3.80	20.00	5.76	22.20	6.08
Female	18.90	5.30	20.00	4.20	22.10	6.64	22.90	4.72

Table 6.26. (Continued):

	Science							
	Grade 9		Grade 10		Grade 11		Grade 12	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	14.51	5.40	16.75	5.74	17.89	6.60	16.52	7.39
Male	14.77	5.54	17.23	5.57	18.03	7.04	16.27	8.03
Female	14.12	5.22	16.02	5.97	17.67	5.95	16.88	6.29
1st Quarter (Lowest)								
Total	11.60	4.69	13.00	5.34	14.53	6.00	11.90	6.85
Male	11.30	5.20	13.40	5.85	14.40	6.25	11.40	7.65
Female	12.20	3.65	12.20	4.32	14.80	5.79	12.90	5.09
2nd Quarter								
Total	12.97	4.50	14.61	5.58	17.19	5.04	15.52	6.40
Male	13.76	4.04	15.53	4.20	17.24	6.25	15.12	7.19
Female	12.00	4.98	13.50	6.90	17.14	3.23	16.00	5.51
3rd Quarter								
Total	14.16	4.58	17.39	3.98	16.58	7.16	15.77	6.76
Male	14.56	4.79	17.69	4.41	16.75	7.65	15.31	7.65
Female	13.73	4.46	17.07	3.60	16.40	6.87	16.27	5.89
4th Quarter (Highest)								
Total	19.37	4.62	22.03	3.43	23.30	4.70	22.93	5.02
Male	19.25	4.77	22.15	3.08	23.35	4.91	22.90	5.11
Female	19.60	4.55	21.80	4.21	23.20	4.49	23.00	5.12

Table 6.26. (Continued):

	Use of Sources							
	Grade 9		Grade 10		Grade 11		Grade 12	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	13.83	5.08	14.95	5.99	15.20	6.44	15.81	7.98
Male	13.42	4.94	14.03	6.50	13.99	6.54	14.40	8.13
Female	14.43	5.27	16.33	4.90	17.00	5.91	17.92	7.35
1st Quarter (Lowest)								
Total	10.07	4.19	11.67	4.76	12.03	5.86	11.83	6.63
Male	9.65	3.90	10.65	4.75	10.65	5.42	10.55	6.55
Female	10.90	4.84	13.70	4.30	14.80	5.98	14.40	6.33
2nd Quarter								
Total	11.84	3.58	13.32	5.29	13.87	4.26	14.77	7.24
Male	12.00	3.46	11.88	5.31	12.06	3.07	12.18	6.13
Female	11.64	3.84	15.07	4.89	16.07	4.57	17.93	7.43
3rd Quarter								
Total	14.26	3.52	13.68	4.98	14.52	6.32	14.26	7.95
Male	12.88	3.32	11.81	6.10	13.44	6.70	11.81	6.96
Female	15.73	3.20	15.67	2.26	15.67	5.89	16.87	8.32
4th Quarter (Highest)								
Total	19.20	3.86	21.23	3.99	20.43	6.13	22.47	6.03
Male	18.85	3.22	21.00	3.57	19.40	6.56	22.20	6.91
Female	19.90	5.04	21.70	4.90	22.50	4.84	23.00	4.00

Table 6.27. Tests of Significance (Repeated Measures ANOVA) of Differences in Educational Achievement for Traditional Longitudinal Cohort 1: Cedarburg High School

Source	Sex(S)	Quarter(Q)	S X Q	Error	Gain(G)	G X S	G X Q	G X S X Q	Error
Comprehension									
Degrees of Freedom	1	3	3	114	3	3	9	9	342
Mean Square	196.13	1693.73	34.07	57.94	176.70	6.04	13.87	7.81	7.65
F	3.38	29.23	.59		23.11	.79	1.81	1.02	
P	.068	<.001	.624		<.001	.500	.065	.422	
Vocabulary									
Degrees of Freedom	1	3	3	114	3	3	9	9	342
Mean Square	48.09	1688.04	11.41	58.02	249.51	19.05	4.09	5.47	8.12
F	.83	29.09	.20		30.73	2.35	.50	.67	
P	.365	<.001	.899		<.001	.073	.871	.733	
Reading Total									
Degrees of Freedom	1	3	3	114	3	3	9	9	342
Mean Square	113.36	1771.56	21.10	50.36	250.97	7.22	7.30	3.93	5.23
F	2.25	35.18	.42		47.95	1.38	1.39	.75	
P	.136	<.001	.740		<.001	.249	.189	.662	
Usage									
Degrees of Freedom	1	3	3	114	3	3	9	9	342
Mean Square	754.88	1279.76	24.22	56.90	85.92	13.10	16.15	15.88	9.19
F	13.27	22.49	.43		9.35	1.42	1.76	1.73	
P	<.001	<.001	.735		<.001	.235	.075	.081	
Spelling									
Degrees of Freedom	1	3	3	114	3	3	9	9	342
Mean Square	950.48	1193.49	12.79	73.18	357.76	6.08	3.76	4.40	6.88
F	12.99	16.31	.17		51.96	.88	.55	.64	
P	<.001	<.001	.913		<.001	.450	.840	.763	

Table 6.27. (Continued):

Source	Sex(S)	Quarter(Q)	S X Q	Error	Gain(G)	G X S	G X Q	G X S X Q	Error
Language Total									
Degrees of Freedom	1	3	3	114	3	3	9	9	342
Mean Square	882.83	1306.01	2.85	52.77	176.68	4.70	8.28	7.89	5.62
F	16.73	24.75	.05		31.44	.84	1.47	1.40	
P	<.001	<.001	.983		<.001	.474	.156	.185	
Math									
Degrees of Freedom	1	3	3	114	3	3	9	9	342
Mean Square	11.82	2156.77	43.42	58.89	242.45	2.09	19.61	.96	10.32
F	.20	36.62	.74		23.48	.20	1.90	.09	
P	.655	<.001	.532		<.001	.895	.051	.999	
Social Studies									
Degrees of Freedom	1	3	3	114	3	3	9	9	342
Mean Square	27.31	1561.43	34.30	63.77	224.85	8.81	11.55	5.85	11.39
F	.43	24.49	.54		19.73	.77	1.01	.51	
P	.514	<.001	.657		<.001	.510	.428	.865	
Science									
Degrees of Freedom	1	3	3	114	3	3	9	9	342
Mean Square	2.36	1615.97	6.58	77.98	221.50	17.86	19.91	3.55	13.88
F	.03	20.72	.08		15.96	1.29	1.43	.26	
P	.862	<.001	.968		<.001	.279	.172	.985	
Use of Sources									
Degrees of Freedom	1	3	3	114	3	3	9	9	342
Mean Square	886.65	1750.54	24.05	70.59	97.53	38.41	15.34	13.98	13.87
F	12.56	24.80	.34		7.03	2.77	1.11	1.01	
P	.001	<.001	.796		<.001	.042	.358	.433	

Table 6.28. Mean Mental Ability and Mean Educational Achievement for Traditional Longitudinal Cohort 2: Cedarburg High School

	Mental Ability			Comprehension					
				Grade 9		Grade 10		Grade 11	
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	130	113.85	10.59	13.91	4.34	16.36	4.91	17.38	5.07
Male	55	113.80	11.36	13.13	4.56	15.82	5.08	17.25	6.00
Female	75	113.88	10.07	14.48	4.10	16.76	4.77	17.48	4.30
1st Quarter (Lowest)									
Total	32	101.16	4.14	11.50	3.83	12.84	3.99	13.53	4.79
Male	14	101.57	3.65	11.36	3.37	12.86	3.68	12.57	5.72
Female	18	100.83	4.55	11.61	4.24	12.83	4.33	14.28	3.92
2nd Quarter									
Total	33	109.85	1.68	11.85	3.63	14.45	3.68	15.85	3.71
Male	17	109.59	1.73	10.53	3.28	13.76	4.05	15.35	4.03
Female	16	110.13	1.63	13.25	3.55	15.19	3.21	16.38	3.38
3rd Quarter									
Total	32	116.22	2.47	14.78	3.26	17.81	3.93	18.16	4.27
Male	11	116.27	1.20	14.27	3.20	17.18	3.74	19.00	4.31
Female	21	116.19	2.66	15.05	3.34	18.14	4.08	17.71	4.28
4th Quarter (Highest)									
Total	33	127.85	6.46	17.45	3.77	20.27	4.37	21.91	3.32
Male	13	130.38	7.41	17.46	4.86	20.54	5.09	23.31	4.01
Female	20	126.20	5.32	17.45	3.00	20.10	3.96	21.00	2.49

Table 6.28. (Continued):

	Vocabulary					
	Grade 9		Grade 10		Grade 11	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	15.47	4.53	16.31	4.54	18.89	4.62
Male	15.80	4.51	16.13	5.01	18.84	5.11
Female	15.23	4.56	16.44	4.19	18.93	4.25
1st Quarter (Lowest)						
Total	11.88	4.04	13.56	3.99	15.34	4.73
Male	13.00	3.74	13.29	4.70	15.21	5.10
Female	11.00	4.14	13.78	3.47	15.44	4.60
2nd Quarter						
Total	13.91	3.65	14.18	3.60	17.64	3.39
Male	13.76	3.33	14.00	3.35	17.06	3.38
Female	14.06	4.07	14.38	3.95	18.25	3.40
3rd Quarter						
Total	16.91	3.53	17.72	3.99	20.38	3.63
Male	17.45	3.70	17.73	5.18	20.73	4.31
Female	16.62	3.50	17.71	3.35	20.19	3.31
4th Quarter (Highest)						
Total	19.12	3.20	19.73	3.61	22.15	3.53
Male	20.08	3.57	20.62	3.40	23.46	3.53
Female	18.50	2.86	19.15	3.70	21.30	3.34

Table 6.28. (Continued):

	Reading Total					
	Grade 9		Grade 10		Grade 11	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	14.11	3.90	15.82	4.45	17.75	4.81
Male	13.91	4.19	15.53	4.71	17.73	5.67
Female	14.25	3.69	16.03	4.27	17.76	4.10
1st Quarter (Lowest)						
Total	11.22	2.81	12.59	3.11	13.75	4.14
Male	11.50	2.56	12.50	2.82	13.29	4.92
Female	11.00	3.05	12.67	3.40	14.11	3.53
2nd Quarter						
Total	12.33	2.79	13.79	3.17	16.09	3.48
Male	11.59	2.55	13.35	3.35	15.53	3.57
Female	13.13	2.90	14.25	3.00	16.69	3.38
3rd Quarter						
Total	15.19	2.91	17.22	3.75	19.06	3.84
Male	15.27	2.94	17.09	3.99	19.91	4.59
Female	15.14	2.97	17.29	3.72	18.62	3.43
4th Quarter (Highest)						
Total	17.64	3.46	19.61	3.93	22.00	3.32
Male	18.38	4.25	20.31	4.33	23.54	3.64
Female	17.15	2.85	19.15	3.69	21.00	2.73

Table 6.28. (Continued):

	Usage					
	Grade 9		Grade 10		Grade 11	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	15.49	4.08	16.77	3.76	18.12	4.71
Male	14.38	3.77	16.00	3.66	16.76	5.00
Female	16.31	4.13	17.33	3.75	19.11	4.25
1st Quarter (Lowest)						
Total	12.81	4.03	13.88	3.32	15.53	3.84
Male	12.00	4.33	13.00	2.69	14.50	4.15
Female	13.44	3.78	14.56	3.67	16.33	3.48
2nd Quarter						
Total	14.33	3.18	16.24	2.96	16.82	3.41
Male	13.41	2.37	15.59	2.40	16.18	3.64
Female	15.31	3.68	16.94	3.40	17.50	3.12
3rd Quarter						
Total	16.56	3.58	17.47	3.49	18.00	5.01
Male	16.00	3.22	16.64	3.29	16.09	6.39
Female	16.86	3.80	17.90	3.59	19.00	3.92
4th. Quarter (Highest)						
Total	18.21	3.40	19.42	3.04	22.03	3.88
Male	16.85	3.26	19.23	3.63	20.54	4.47
Female	19.10	3.26	19.55	2.68	23.00	3.20

Table 6.28. (Continued):

	Spelling					
	Grade 9		Grade 10		Grade 11	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	14.07	4.83	15.82	4.39	18.12	5.03
Male	12.65	4.80	14.78	4.02	16.29	4.92
Female	15.11	4.61	16.57	4.52	19.45	4.72
1st Quarter (Lowest)						
Total	11.53	3.98	13.41	4.43	15.59	4.76
Male	11.14	3.86	13.14	4.80	13.93	4.48
Female	11.83	4.16	13.61	4.26	16.89	4.69
2nd Quarter						
Total	12.73	5.01	14.88	4.36	16.97	5.02
Male	11.18	5.36	13.47	3.97	14.82	4.61
Female	14.38	4.15	16.38	4.38	19.25	4.49
3rd Quarter						
Total	16.03	4.76	16.69	3.75	19.19	4.37
Male	14.73	5.02	15.82	2.36	18.00	5.20
Female	16.71	4.58	17.14	4.28	19.81	3.87
4th Quarter (Highest)						
Total	15.97	3.98	18.24	3.54	20.67	4.57
Male	14.46	3.89	17.38	2.84	19.31	3.75
Female	16.95	3.82	18.80	3.89	21.55	4.93

Table 6.28. (Continued):

	Language Total					
	Grade 9		Grade 10		Grade 11	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	14.95	3.91	16.48	3.72	18.45	4.59
Male	13.67	3.57	15.35	3.39	16.85	4.72
Female	15.89	3.89	17.16	3.83	19.61	4.15
1st Quarter (Lowest)						
Total	12.31	3.32	13.72	2.98	15.69	4.06
Male	11.71	3.20	13.14	2.91	14.29	4.10
Female	12.78	3.42	14.17	3.03	16.78	3.78
2nd Quarter						
Total	13.76	3.24	15.61	3.30	17.24	3.80
Male	12.59	2.87	14.65	2.60	15.88	3.60
Female	15.00	3.22	16.63	3.72	18.69	3.55
3rd Quarter						
Total	16.47	3.56	17.34	3.52	19.06	4.51
Male	15.55	3.62	16.45	2.73	17.55	5.79
Female	16.95	3.53	17.81	3.84	19.86	3.60
4th Quarter (Highest)						
Total	17.24	3.45	19.18	2.79	21.73	3.76
Male	15.62	3.33	18.54	2.99	20.31	3.79
Female	18.30	3.16	19.60	2.64	22.65	3.53

Table 6.28. (Continued):

	Math					
	Grade 9		Grade 10		Grade 11	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	12.93	3.95	14.96	5.27	16.61	5.47
Male	13.64	4.60	15.76	6.00	17.05	6.48
Female	12.41	3.34	14.37	4.61	16.28	4.62
1st Quarter (Lowest)						
Total	10.00	2.91	11.56	3.96	12.38	4.03
Male	10.79	2.78	12.86	4.54	13.00	4.35
Female	9.39	2.93	10.56	3.22	11.89	3.82
2nd Quarter						
Total	11.15	2.24	12.55	4.08	14.33	4.23
Male	11.06	2.56	12.88	4.27	13.59	4.84
Female	11.25	1.91	12.19	3.97	15.13	3.44
3rd Quarter						
Total	13.66	2.86	15.66	3.96	17.69	3.86
Male	14.82	3.52	15.91	5.15	18.36	4.43
Female	13.05	2.31	15.52	3.33	17.33	3.60
4th Quarter (Highest)						
Total	16.85	3.70	20.00	4.53	21.94	4.34
Male	19.08	3.97	22.54	4.67	24.85	4.14
Female	15.40	2.74	18.35	3.67	20.05	3.38

Table 6.28. (Continued):

	Social Studies					
	Grade 9		Grade 10		Grade 11	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	12.77	3.84	15.31	4.96	18.85	4.77
Male	13.18	4.15	15.20	5.49	17.09	5.69
Female	12.47	3.59	15.39	4.57	16.68	3.99
1st Quarter (Lowest)						
Total	10.97	3.78	12.44	4.41	14.03	4.48
Male	12.00	3.84	11.86	4.80	13.79	5.63
Female	10.17	3.63	12.89	4.16	14.22	3.49
2nd Quarter						
Total	11.42	3.76	13.00	3.67	15.24	3.95
Male	11.29	4.01	12.94	3.83	14.65	4.81
Female	11.56	3.60	13.06	3.61	15.88	2.80
3rd Quarter						
Total	13.34	2.59	16.13	3.83	17.22	4.27
Male	13.82	2.60	16.55	3.62	18.36	3.98
Female	13.10	2.61	15.90	4.01	16.62	4.39
4th Quarter (Highest)						
Total	15.30	3.59	19.61	4.38	20.85	3.42
Male	16.38	4.05	20.62	5.12	22.77	3.11
Female	14.60	3.17	18.95	3.82	19.60	3.07

Table 6.28. (Continued):

	Science					
	Grade 9		Grade 10		Grade 11	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	14.73	5.01	18.44	4.65	18.92	5.45
Male	15.00	5.31	18.96	5.28	19.98	6.40
Female	14.53	4.80	18.05	4.12	18.13	4.52
1st Quarter (Lowest)						
Total	11.06	4.56	14.69	4.33	14.81	5.58
Male	11.43	4.03	14.50	4.69	15.29	6.63
Female	10.78	5.04	14.83	4.18	14.44	4.79
2nd Quarter						
Total	13.18	3.54	16.97	3.74	17.48	4.92
Male	12.88	3.94	17.41	4.51	17.94	5.97
Female	13.50	3.16	16.50	2.76	17.00	3.61
3rd Quarter						
Total	15.84	4.42	20.28	3.15	20.25	3.90
Male	17.55	4.11	22.00	2.93	22.91	3.73
Female	14.95	4.41	19.38	2.94	18.86	3.28
4th Quarter (Highest)						
Total	18.76	3.93	21.76	3.78	23.03	3.54
Male	19.46	5.06	23.23	3.56	25.23	2.92
Female	18.30	3.05	20.80	3.69	21.60	3.20

Table 6.28. (Continued):

	Use of Sources					
	Grade 9		Grade 10		Grade 11	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	16.46	4.74	16.65	5.03	18.11	5.87
Male	15.71	5.13	16.40	5.52	16.78	6.38
Female	17.01	4.39	16.84	4.66	19.08	5.30
1st Quarter (Lowest)						
Total	12.44	3.83	13.22	4.26	13.94	3.71
Male	11.86	2.74	13.57	5.14	12.93	4.46
Female	12.89	4.54	12.94	3.57	14.72	2.89
2nd Quarter						
Total	15.24	4.60	15.36	4.58	15.94	5.58
Male	13.71	4.81	14.76	4.87	14.00	5.23
Female	16.88	3.86	16.00	4.32	18.00	5.33
3rd Quarter						
Total	17.91	3.50	17.50	4.26	19.09	5.47
Male	18.36	4.30	16.91	4.48	18.73	6.97
Female	17.67	3.10	17.81	4.21	19.29	4.69
4th Quarter (Highest)						
Total	20.18	3.05	20.45	4.07	23.36	3.72
Male	20.23	3.54	21.15	4.74	22.92	3.48
Female	20.15	2.78	20.00	3.63	23.65	3.94

Table 6.29. Tests of Significance (Repeated Measures ANOVA) of Differences in Educational Achievement for Traditional Longitudinal Cohort 2: Cedarburg High School

Source	Sex(S)	Quarter(Q)	S X Q	Error	Gain(G)	G X S	G X Q	G X S X Q	Error
Comprehension									
Degrees of Freedom	1	3	3	122	2	2	6	6	244
Mean Square	14.91	1007.55	29.03	32.41	416.91	10.46	11.92	8.69	6.62
F	.46	31.09	.90		63.01	1.58	1.80	1.31	
P	.459	<.001	.446		<.001	.208	.099	.252	
Vocabulary									
Degrees of Freedom	1	3	3	122	2	2	6	6	244
Mean Square	23.38	906.19	22.42	33.17	394.89	6.74	4.46	4.14	4.76
F	.70	27.32	.68		82.88	1.41	.94	.87	
P	.403	<.001	.568		<.001	.245	.469	.519	
Reading Total									
Degrees of Freedom	1	3	3	122	2	2	6	6	244
Mean Square	2.79	1030.07	33.80	28.60	425.08	2.03	6.73	3.88	3.28
F	.10	36.02	1.18		129.47	.62	2.05	1.18	
P	.756	<.001	.320		<.001	.539	.060	.317	
Usage									
Degrees of Freedom	1	3	3	122	2	2	6	6	244
Mean Square	246.11	549.11	.13	27.52	197.99	7.92	12.04	4.38	5.46
F	8.94	19.96	<.01		36.26	1.45	2.20	.80	
P	.003	<.001	.999		<.001	.236	.043	.569	
Spelling									
Degrees of Freedom	1	3	3	122	2	2	6	6	244
Mean Square	435.76	410.93	21.45	44.55	505.76	13.91	4.85	3.10	5.46
F	9.78	9.22	.48		92.55	2.55	.89	.57	
P	.002	<.001	.696		<.001	.080	.505	.757	

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Table 6.29. (Continued):

Source	Sex(S)	Quarter(Q)	S X Q	Error	Gain(G)	G X S	G X Q	G X S X Q	Error
Language Total									
Degrees of Freedom	1	3	3	122	2	2	6	6	244
Mean Square	341.32	501.71	3.58	29.33	369.03	10.01	5.85	1.58	3.27
F	11.64	17.11	.12		112.76	3.06	1.79	.48	
P	.001	<.001	.947		<.001	.049	.102	.820	
Math									
Degrees of Freedom	1	3	3	122	2	2	6	6	244
Mean Square	249.86	1403.88	87.34	24.38	420.81	2.31	13.34	5.57	7.76
F	10.25	57.58	3.58		54.20	.30	1.72	.72	
P	.002	<.001	.016		<.001	.743	.117	.636	
Social Studies									
Degrees of Freedom	1	3	3	122	2	2	6	6	244
Mean Square	46.60	777.10	33.98	33.90	535.99	4.41	17.89	8.28	5.48
F	1.37	22.92	1.00		97.79	.80	3.26	1.51	
P	.243	<.001	.394		<.001	.448	.004	.175	
Science									
Degrees of Freedom	1	3	3	122	2	2	6	6	244
Mean Square	231.30	1159.40	44.20	34.87	679.50	16.33	3.94	3.48	7.78
F	6.63	33.25	1.27		87.31	2.10	.51	.45	
P	.011	<.001	.289		<.001	.125	.803	.847	
Use of Sources									
Degrees of Freedom	1	3	3	122	2	2	6	6	244
Mean Square	76.48	1168.35	41.99	39.76	91.18	22.06	13.50	5.74	7.34
F	1.92	29.39	1.06		12.43	3.01	1.84	.78	
P	.168	<.001	.370		<.001	.051	.092	.584	

Table 7.1. Mean Mental Ability and Mean Educational Achievement for Four Successive Grade 10 Groups: Hood River Valley High School

	N	Mental Ability		Reading		English		Math	
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1977-78									
Total	195	101.66	14.77	49.64	14.63	44.68	13.90	27.28	9.92
Male	101	99.90	15.62	47.87	15.94	41.12	14.84	26.58	10.77
Female	94	103.55	13.63	51.33	12.90	48.50	11.73	28.03	8.92
1978-79									
Total	160	103.73	14.06	49.36	13.43	44.45	12.91	26.78	9.83
Male	79	105.33	14.08	49.30	14.82	42.13	13.83	27.22	9.92
Female	81	102.17	13.95	49.42	12.01	46.72	11.60	26.35	9.79
1979-80									
Total	173	95.28	14.78	51.22	12.85	45.50	12.65	27.67	9.39
Male	92	94.11	15.89	49.51	13.32	41.36	12.86	26.47	9.73
Female	81	96.62	13.39	53.16	12.10	50.21	10.67	29.04	8.85
1980-81									
Total	132	94.04	15.50	49.58	14.62	46.15	14.02	26.55	9.70
Male	61	92.70	13.33	46.48	14.18	41.44	14.39	25.25	10.57
Female	71	95.18	17.16	52.25	14.56	50.20	12.42	27.68	8.80

Table 7.2. Mean Mental Ability and Mean Educational Achievement for Four Successive Grade 11 Groups: Hood River Valley High School

	N	Mental Ability		Reading		English		Math	
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1977-78									
Total	151	105.36	13.26	56.19	11.75	49.31	11.13	31.13	8.91
Male	66	106.85	10.96	55.95	10.75	46.24	11.63	31.56	8.84
Female	85	104.20	14.76	56.36	12.54	51.69	10.18	30.80	9.01
1978-79									
Total	169	102.42	14.10	55.69	13.62	48.92	13.71	30.41	10.46
Male	88	100.91	14.44	54.20	15.35	44.45	14.17	28.88	11.15
Female	81	104.06	13.62	57.30	11.32	53.33	11.77	32.07	9.45
1979-80									
Total	113	106.60	13.47	55.67	13.06	49.25	11.70	32.13	9.79
Male	57	107.65	14.32	55.75	15.26	46.31	12.79	32.43	10.25
Female	56	105.54	12.59	55.59	10.48	52.29	9.65	31.82	9.37
1980-81									
Total	156	94.91	14.61	54.17	13.27	47.30	13.74	29.48	9.87
Male	86	93.86	15.69	52.73	13.94	43.52	14.20	28.73	10.10
Female	70	96.20	13.18	55.93	12.26	51.94	11.67	30.40	9.58

Table 7.3. Mean Mental Ability and Mean Educational Achievement for Four Successive Grade 12 Groups: Hood River Valley High School

	N	Mental Ability		Reading		English		Math	
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1977-78									
Total	116	102.01	16.97	54.82	15.39	47.64	13.07	29.38	10.61
Male	59	105.53	17.13	55.07	16.50	45.14	13.83	31.08	10.51
Female	57	98.37	16.16	54.56	14.29	50.23	11.79	27.61	10.52
1978-79									
Total	137	105.77	13.43	59.75	10.69	52.01	10.95	32.99	9.54
Male	60	107.33	11.24	58.80	10.94	48.72	11.38	33.02	9.44
Female	77	104.55	14.88	60.49	10.50	54.57	9.95	32.98	9.68
1979-80									
Total	145	104.52	13.79	58.79	13.94	51.83	12.53	31.99	10.52
Male	73	103.51	14.44	56.40	16.41	48.27	13.43	31.26	10.86
Female	72	105.54	13.12	61.21	10.46	55.43	10.44	32.72	10.19
1980-81									
Total	110	105.78	14.03	57.46	13.02	51.26	12.51	32.26	10.38
Male	55	106.87	14.96	56.44	15.02	46.62	13.96	31.31	11.55
Female	55	104.69	13.09	58.49	10.69	55.91	8.77	33.22	9.07

Table 7.4. Adjusted Means in Educational Achievement for Four Successive Grade 10 Groups with Mental Ability Scores: Hood River Valley High School

	N	Reading	English	Math
1977-78				
Total	195	47.85	43.04	25.99
Male	101	47.25	40.55	26.14
Female	94	48.49	45.72	25.84
1978-79				
Total	160	46.20	41.56	24.50
Male	79	45.09	38.26	24.17
Female	81	47.29	44.77	24.81
1979-80				
Total	173	53.66	47.74	29.43
Male	92	52.73	44.31	28.79
Female	81	54.72	51.64	30.16
1980-81				
Total	132	52.85	49.14	28.91
Male	61	50.63	45.24	28.24
Female	71	54.76	52.49	29.48

Table 7.5. Tests of Significance (ANCOVA) of Differences in Educational Achievement for four Successive Grade 1
Groups with Mental Ability Scores: Hood River Valley High School

Source	Covariate	Year(Y)	Sex(S)	Y X S	Residual	To
Reading						
Degrees of Freedom	1	3	1	3	651	65
Mean Square	62153.33	2038.11	920.50	56.47	95.50	19
F	650.82	21.34	9.64	.59		
P	<.001	<.001	.002	.621		
English						
Degrees of Freedom	1	3	1	3	651	65
Mean Square	52075.07	1887.70	6927.60	44.92	85.69	17
F	607.75	22.03	80.85	.52		
P	<.001	<.001	<.001	.666		
Math						
Degrees of Freedom	1	3	1	3	651	65
Mean Square	32241.82	841.24	88.04	25.87	44.69	9
F	721.44	18.82	1.97	.58		
P	<.001	<.001	.161	.629		

Table 7.6. Adjusted Means in Educational Achievement for Four Successive Grade 11 Groups with Mental Ability Scores: Hood River Valley High School

	N	Reading	English	Math
1977-78				
Total	151	54.10	47.32	29.49
Male	66	52.94	43.39	29.19
Female	85	54.99	50.38	29.71
1978-79				
Total	169	55.42	48.64	30.18
Male	88	54.87	45.46	29.38
Female	81	56.01	52.10	31.05
1979-80				
Total	113	52.81	46.67	30.00
Male	57	52.24	43.27	29.92
Female	56	53.39	50.19	30.09
1980-81				
Total	156	58.55	51.40	32.88
Male	86	57.77	48.24	32.64
Female	70	59.52	55.29	33.17

Table 7.7. Tests of Significance (ANCOVA) of Differences in Educational Achievement for Four Successive Grade 11 Groups with Mental Ability Scores: Hood River Valley High School

Source	Covariate	Year(Y)	Sex(S)	Y X S	Residual	Total
Reading						
Degrees of Freedom	1	3	1	3	580	588
Mean Square	43166.68	812.01	330.20	7.54	93.58	167.69
F	461.28	8.68	3.53	.08		
P	<.001	<.001	.061	.971		
English						
Degrees of Freedom	1	3	1	3	581	589
Mean Square	38402.15	721.39	6829.63	1.35	83.69	161.84
F	458.84	8.62	81.60	.02		
P	<.001	<.001	<.001	.997		
Math						
Degrees of Freedom	1	3	1	3	581	589
Mean Square	26321.99	327.58	75.61	16.37	50.52	96.36
F	521.01	6.48	1.50	.32		
P	<.001	<.001	.222	.808		

Table 7.8. Adjusted Means in Educational Achievement for Four Successive Grade 12 Groups with Mental Ability Scores: Hood River Valley High School

	N	Reading	English	Math
1977-78				
Total	116	56.34	49.05	30.64
Male	59	54.49	44 60	30.61
Female	57	58.26	53.66	30.67
1978-79				
Total	137	59.03	51.34	32.39
Male	60	57.14	47.18	31.64
Female	77	60.50	54.58	32.97
1979-80				
Total	145	58.81	51.85	32.00
Male	73	57.02	48.85	31.78
Female	72	60.62	54.88	32.23
1980-81				
Total	110	56.73	50.58	31.66
Male	55	55.05	45.33	30.16
Female	55	58.41	55.83	33.15

Table 7.9. Tests of Significance (ANCOVA) of Differences in Educational Achievement for Four Successive Grade 12 Groups with Mental Ability Scores: Hood River Valley High School

Source	Covariate	Year(Y)	Sex(S)	Y X S	Residual	Total
Reading						
Degrees of Freedom	1	3	1	3	499	507
Mean Square	37411.75	216.83	1538.34	1.21	101.69	179.33
F	367.89	2.13	15.13	.01		
P	<.001	.095	<.001	.998		
English						
Degrees of Freedom	1	3	1	3	499	507
Mean Square	32057.02	162.96	8429.05	118.26	74.95	152.13
F	427.71	2.17	112.46	1.58		
P	<.001	.090	<.001	.194		
Math						
Degrees of Freedom	1	3	1	3	499	507
Mean Square	25514.84	64.06	180.84	48.44	54.05	106.34
F	472.03	1.85	3.35	.90		
P	<.001	.315	.068	.443		

Table 7.10. Mean Educational Achievement for Four Successive Grade 10 Groups without Mental Ability Scores: Hood River Valley High School

	N	Reading $\bar{X}$	Reading SD	English $\bar{X}$	English SD	Math $\bar{X}$	Math SD
1977-78							
Total	48	47.65	13.99	42.23	13.52	24.27	9.09
Male	22	43.50	14.18	39.00	13.61	23.64	9.19
Female	26	51.15	13.07	44.96	13.08	24.81	9.14
1978-79							
Total	44	46.66	18.45	42.70	16.09	25.48	9.94
Male	20	48.55	17.91	41.35	15.55	27.90	10.76
Female	24	45.08	19.12	43.83	16.77	23.46	8.92
1979-80							
Total	34	48.74	16.25	40.53	15.84	25.85	10.88
Male	21	51.86	16.64	40.86	16.33	26.24	10.88
Female	13	43.69	14.85	40.00	15.67	25.23	11.29
1980-81							
Total	49	49.76	14.84	43.47	14.02	26.69	9.10
Male	29	49.59	15.24	41.66	15.76	28.72	9.58
Female	20	50.00	14.64	46.10	10.88	23.75	7.65

Table 7.11. Tests of Significance (ANOVA) of Differences in Educational Achievement for Four Successive Grade 10 Groups without Mental Ability Scores: Hood River Valley High School

Source	Year(Y)	Sex(S)	Y X S	Residual	Total
Reading					
Degrees of Freedom	3	1	3	167	174
Mean Square	79.66	1.24	455.09	250.05	249.26
F	.32	.01	1.82		
P	.812	.944	.145		
English					
Degrees of Freedom	3	1	3	167	174
Mean Square	57.41	484.79	81.92	219.84	216.23
F	.26	2.21	.37		
P	.853	.139	.773		
Math					
Degrees of Freedom	3	1	3	167	174
Mean Square	35.80	241.14	97.15	92.64	92.81
F	.39	2.60	1.05		
P	.763	.11	.373		

Table 7.12. Mean Educational Achievement for Four Successive Grade 11 Groups without Mental Ability Scores: Hood River Valley High School

	N	Reading		English		Math	
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1977-78							
Total	57	55.49	12.27	47.43	12.04	27.95	9.97
Male	29	56.10	12.35	46.07	11.66	30.07	10.09
Female	28	54.86	12.38	48.89	12.49	25.67	9.50
1978-79							
Total	47	51.60	12.01	46.70	11.84	28.19	9.69
Male	19	53.00	10.97	44.89	11.97	28.89	9.87
Female	28	50.64	12.78	47.93	11.82	27.71	9.71
1979-80							
Total	36	57.86	11.00	50.44	11.71	30.56	9.64
Male	16	55.38	11.75	45.50	13.31	29.38	10.67
Female	20	59.85	10.21	54.40	8.71	31.50	8.90
1980-81							
Total	43	48.07	19.91	39.19	17.43	24.42	11.62
Male	30	47.90	22.03	37.27	17.85	24.13	12.38
Female	13	48.46	14.64	43.62	16.22	25.08	10.07

Table 7.13. Tests of Significance (ANOVA) of Differences in Educational Achievement for Four Successive Grade 11 Groups without Mental Ability Scores: Hood River Valley High School

Source	Year(Y)	Sex(S)	Y X S	Residual	Total
Reading					
Degrees of Freedom	3	1	3	175	182
Mean Square	763.22	<.01	88.63	203.96	210.40
F	3.74	<.01	.44		
P	.012	.996	.729		
English					
Degrees of Freedom	3	1	3	174	181
Mean Square	719.39	1023.90	87.04	176.43	192.41
F	4.08	5 80	.49		
P	.008	.017	.687		
Math					
Degrees of Freedom	3	1	3	174	181
Mean Square	273.42	52.09	94.29	105.60	107.63
F	2.59	.49	.89		
P	.055	.483	.446		

Table 7.14. Mean Educational Achievement for Four Successive Grade 12 Groups without Mental Ability Scores: Hood River Valley High School

	N	Reading		English		Math	
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1977-78							
Total	35	51.66	13.60	43.57	12.91	26.31	9.98
Male	18	54.50	13.55	43.83	12.66	28.89	10.44
Female	17	48.65	13.38	43.29	13.55	23.59	8.98
1978-79							
Total	62	55.65	15.78	46.94	14.40	28.03	10.45
Male	33	55.67	16.45	46.55	13.58	30.18	10.87
Female	29	55.62	15.26	47.38	15.51	25.59	9.55
1979-80							
Total	35	58.14	12.47	51.37	10.69	31.71	9.18
Male	15	61.47	12.29	52.13	11.06	33.47	7.81
Female	20	55.65	12.31	50.80	10.65	30.40	10.09
1980-81							
Total	40	58.73	12.33	51.18	11.52	31.05	9.10
Male	18	56.83	12.71	48.56	10.38	32.28	9.03
Female	22	60.27	12.08	53.32	12.19	30.05	9.25

Table 7.15. Tests of Significance (ANOVA) of Differences in Educational Achievement for Four Successive Grade 12 Groups without Mental Ability Scores: Hood River Valley High School

Source	Year(Y)	Sex(S)	Y X S	Residual	Total
Reading					
Degrees of Freedom	3	1	3	164	171
Mean Square	386.12	107.43	199.74	194.99	197.72
F	1.99	.55	1.02		
P	.117	.459	.383		
English					
Degrees of Freedom	3	1	3	164	171
Mean Square	502.67	45.14	69.31	165.39	169.19
F	3.04	.27	.42		
P	.031	.602	.740		
Math					
Degrees of Freedom	3	1	3	164	171
Mean Square	280.31	643.49	19.37	94.18	98.71
F	2.98	6.83	.21		
P	.033	.010	.892		

Table 7.16. Summary of Differences in Educational Achievement and Post-hoc Comparisons for Four Successive Grade 10, Grade 11, and Grade 12 Groups without Mental Ability Scores: Hood River Valley High School

	Group (G)	Sex (S)	S X G	1977-78 vs 1978-79	1977-78 vs 1979-80	1977-78 vs 1980-81	1978-79 vs 1979-80	1978-79 vs 1980-81	1979-80 vs 1980-81
Grade 10									
Reading	NS	NS	NS						
English	NS	NS	NS						
Math	NS	NS	NS						
Grade 11									
Reading	.012	NS	NS	NS	NS	NS	NS	NS	Sign[3]
English	.008	.017[1]	NS	NS	NS	Sign[3]	NS	NS	Sign[3]
Math	NS	NS							
Grade 12									
Reading	NS	NS	NS						
English	.031	NS	NS	NS	NS	NS	NS	NS	NS
Math	.033	.010[2]	NS	NS	NS	NS	NS	NS	NS

[1]The mean achievement of the females was significantly higher than the mean of the males.

[2]The mean achievement of the males was significantly higher than the mean of the females.

[3]The mean of the group of the prior year was significantly higher than the mean of the group of the later year.

Table 7.17. Mean Educational Achievement for Four Successive Grade 10 Groups with and without Mental Ability Scores: Hood River Valley High School

	N	Reading		English		Math	
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1977-78							
Total	243	49.24	14.50	44.19	13.83	26.69	9.81
Male	123	47.09	15.68	40.74	14.60	26.06	10.53
Female	120	51.45	12.88	47.73	12.07	27.33	9.03
1978-79							
Total	204	48.78	14.65	44.07	13.64	26.50	9.85
Male	99	49.15	15.40	41.97	14.12	27.35	10.04
Female	105	48.43	13.97	46.06	12.93	25.69	9.64
1979-80							
Total	207	50.81	13.46	44.69	13 31	27.37	9.65
Male	113	49.95	13.94	41.27	13.49	26.42	9.90
Female	94	51.85	12.85	48.80	11.92	28.51	9.25
1980-81							
Total	181	49.63	14.64	45.43	14.03	26.59	9.51
Male	90	47.48	14.52	41.51	14.76	26.37	10.34
Female	91	51.76	13.53	49.30	12.16	26.81	8.67

Table 7.18. Tests of Significance (ANOVA) of Differences in Educational Achievement for Four Successive Grade 10 Groups with and without Mental Ability Scores: Hood River Valley High School

Source	Year(Y)	Sex(S)	Group(G)	Y X S	Y X G	S X G	Y X S X G	Residual	Total
Reading									
Degrees of Freedom	3	1	1	3	3	1	3	819	834
Mean Square	74.50	192.08	536.01	492.75	95.37	581.12	345.21	202.79	204.83
F	.37	.95	2.64	2.43	.47	2.87	1.70		
P	.777	.331	.104	.064	.703	.091	.165		
English									
Degrees of Freedom	3	1	1	3	3	1	3	819	834
Mean Square	80.09	3578.23	1181.82	94.45	78.12	636.13	105.28	176.52	187.29
F	.45	20.27	6.70	.54	.44	3.60	.60		
P	.715	<.001	.010	.658	.723	.058	.617		
Math									
Degrees of Freedom	3	1	1	3	3	1	3	819	834
Mean Square	93.19	27.89	341.69	116.60	54.54	454.54	77.21	93.78	94.18
F	.99	.30	3.64	1.24	.58	4.85	.82		
P	.420	.586	.057	.293	.627	.028	.481		

Table 7.19. Mean Educational Achievement for Four Successive Grade 11 Groups with and without Mental Ability Scores: Hood River Valley High School

	N	Reading		English		Math	
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1977-78							
Total	208	56.00	11.87	48.80	11.39	30.27	9.29
Male	95	56.00	11.20	46.19	11.58	31.11	9.21
Female	113	55.99	12.46	51.02	10.79	29.56	9.35
1978-79							
Total	216	54.80	13.37	48.44	13.33	29.93	10.32
Male	107	53.99	14.63	44.86	13.75	28.88	10.89
Female	109	55.59	12.01	51.95	11.97	30.95	9.66
1979-80							
Total	149	56.20	12.59	49.53	11.67	31.75	9.75
Male	73	55.67	14.49	46.14	12.82	31.77	10.3[illegible]
Female	76	56.71	10.52	52.84	9.40	31.74	9.[illegible]
1980-81							
Total	199	52.85	15.11	45.55	14.95	28.39	10.45
Male	116	51.48	16.45	41.91	15.40	27.54	10.87
Female	83	54.76	12.86	50.64	12.74	29.57	9.79

Table 7.20. Tests of Significance (ANOVA) of Differences in Educational Achievement for Four Successive Grade 11 Groups with and without Mental Ability Scores: Hood River Valley High School

Source	Year(Y)	Sex(S)	Group(G)	Y X S	Y X G	S X G	Y X S X G	Residual	Total
Reading									
Degrees of Freedom	3	1	1	3	3	1	3	756	771
Mean Square	696.97	128.65	630.51	50.53	374.62	52.73	134.46	176.11	178.43
F	3.96	.73	3.58	.29	2.13	.30	.76		
P	.008	.393	.059	.835	.095	.584	.515		
English									
Degrees of Freedom	3	1	1	3	3	1	3	756	771
Mean Square	650.45	4943.44	945.80	85.15	327.75	105.62	91.30	155.72	170.18
F	4.18	31.75	6.07	.55	2.11	.68	.59		
P	.006	<.001	.014	.650	.098	.410	.624		
Math									
Degrees of Freedom	3	1	1	3	3	1	3	756	771
Mean Square	337.06	1.95	1191.24	124.01	62.65	73.09	80.46	97.95	100.49
F	3.44	.02	12.16	1.27	.64	.75	.82		
P	.016	.888	.001	.285	.590	.388	.482		

Table 7.21. Mean Educational Achievement for Four Successive Grade 12 Groups with and without Mental Ability Scores: Hood River Valley High School

	N	Reading		English		Math	
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1977-78							
Total	151	54.09	15.01	46.70	13.10	28.67	10.52
Male	77	54.94	15.77	44.83	13.50	30.57	10.47
Female	74	53.20	14.22	48.64	12.47	26.69	10.15
1978-79							
Total	199	58.47	12.60	50.43	12.32	31.44	10.07
Male	93	57.69	13.16	47.95	12.17	32.01	10.00
Female	106	59.16	12.11	52.60	12.09	30.94	10.15
1979-80							
Total	180	58.66	13.64	51.74	12.16	31.93	10.25
Male	88	57.26	15.84	48.93	13.08	31.64	10.40
Female	92	60.00	11.06	54.42	10.61	32.22	10.16
1980-81							
Total	150	57.80	12.81	51.24	12.21	31.94	10.04
Male	73	56.53	14.40	47.10	13.13	31.55	10.93
Female	77	59.00	11.05	55.17	9.85	32.31	9.17

Table 7.22. Tests of Significance (ANOVA) of Differences in Educational Achievement for Four Successive Grade 12 Groups with and without Mental Ability Scores: Hood River Valley High School

Source	Year(Y)	Sex(S)	Group(G)	Y X S	Y X G	S X G	Y X S X G	Residual	Total
Reading									
Degrees of Freedom	3	1	1	3	3	1	3	664	679
Mean Square	686.32	.10	312.04	175.07	190.46	507.93	193.26	180.93	184.31
F	3.79	<.01	1.73	.97	1.05	2.81	1.07		
P	.010	.98	.190	.407	.369	.094	.362		
English									
Degrees of Freedom	3	1	1	3	3	1	3	664	679
Mean Square	812.18	1844.73	689.46	131.85	177.30	1067.37	22.85	145.45	157.54
F	5.58	12.68	4.74	.91	1.22	7.34	.16		
P	.001	<.001	.030	.438	.302	.007	.925		
Math									
Degrees of Freedom	3	1	1	3	3	1	3	664	679
Mean Square	398.70	448.89	669.81	98.32	172.34	430.91	12.08	102.31	105.53
F	3.90	4.39	6.55	.96	1.69	4.21	.12		
P	.009	.037	.011	.411	.169	.041	.949		

Table 7.23. Summary of Differences in Educational Achievement and Post-hoc Comparisons for Four Successive Grade 10 Groups with and without Mental Ability Scores: Hood River Valley High School

	Year(Y)	Sex(S)	Group(G)	Y X S	Y X G	S X G	Y X S X G
Reading	NS	NS	NS	NS	NS	NS	NS
English	NS	<.001[1]	.010[2]	NS	NS	NS	NS
Math	NS	NS	NS	NS	NS	.028	NS

[1]The mean achievement of the females was significantly higher than the mean of the males.

[2]The mean of the group with mental ability scores was significantly higher than the mean of the group without mental ability scores.

Table 7.24. Summary of Differences in Educational Achievement and Post-hoc Comparisons for Four Successive Grade 11 Groups with and without Mental Ability Scores: Hood River Valley High School

	Year(Y)	Sex(S)	Group(G)	Y X S	Y X G	S X G	Y X S X G	1977-78 vs 1978-79	1977-78 vs 1979-80	1977-78 vs 1980-81	1978-79 vs 1979-80	1978-79 vs 1980-81	1979-80 vs 1980-81
Reading	.008	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
English	.006	<.001[1]	.014[2]	NS	NS	NS	NS	NS	NS	NS	NS	NS	Sign[3]
Math	.016	NS	.001[2]	NS	NS	NS	NS	NS	NS	NS	NS	NS	Sign[3]

[1]The mean achievement of the females was significantly higher than the mean of the males.

[2]The mean of the group with mental ability scores was significantly higher than the mean of the group without mental ability scores.

[3]The mean of the group of the prior year was significantly higher than the mean of the group of the later year.

Table 7.25. Summary of Differences in Educational Achievement and Post-hoc Comparisons for Four Successive Grade 12 Groups with and without Mental Ability Scores: Hood River Valley High School

	Year(Y)	Sex(S)	Group(G)	Y X S	Y X G	S X G	Y X S X G	1977-78 vs 1978-79	1977-78 vs 1979-80	1977-78 vs 1980-81	1978-79 vs 1979-80	1978-79 vs 1980-81	1979-80 vs 1980-81
Reading	.010	NS	NS	NS	NS	NS	NS	Sign[6]	Sign[6]	NS	NS	NS	NS
English	.001	<.001[1]	.030[2]	NS	NS	.007[3]	NS	Sign[6]	Sign[6]	Sign[6]	NS	NS	NS
Math	.009	.037[4]	.011[2]	NS	NS	.041[5]	NS	NS	Sign[6]	Sign[6]	NS	NS	NS

[1]The mean achievement of the females was significantly higher than the mean of the males.

[2]The mean of the group with mental ability scores was significantly higher than the mean of the group without mental ability scores.

[3]The mean achievement of the females with mental ability scores was significantly higher than the mean of the males with mental ability scores.

[4]The mean achievement of the males was significantly higher than the mean of the females.

[5]The mean achievement of the males without mental ability scores was significantly higher than the mean of the females without mental ability scores.

[6]The mean of the group of the later year was significantly higher than the mean of the group of the prior year.

Table 7.26. Mean Mental Ability and Mean Educational Achievement for Longitudinal Cohort 1: Hood River Valley High School

1977-1978	Mental Ability			Reading		English		Math	
	N	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Grade 10									
Total	134	104.49	13.83	52.65	13.94	47.26	13.08	29.13	9.68
Male	67	103.07	14.42	50.97	15.32	43.28	13.94	28.28	10.86
Female	67	105.91	13.16	54.33	12.31	51.24	10.89	29.99	8.34
1st Quarter									
Total	34	85.82	5.11	35.56	9.24	34.09	8.90	18.00	6.10
Male	21	86.43	4.95	34.86	10.60	31.38	7.97	17.43	5.71
Female	13	84.85	5.43	36.69	6.71	38.46	8.86	18.92	6.81
2nd Quarter									
Total	33	100.36	3.49	51.33	9.16	42.64	11.95	27.48	7.37
Male	18	100.78	3.04	51.17	10.82	39.56	13.27	26.78	8.77
Female	15	99.87	4.02	51.53	7.04	46.33	9.27	28.33	5.42
3rd Quarter									
Total	35	110.86	3.21	59.29	8.22	53.89	7.32	33.40	5.95
Male	14	110.50	3.65	58.93	8.67	52.86	8.86	33.93	6.04
Female	21	111.10	2.95	59.52	8.12	54.57	6.24	33.05	6.00
4th Quarter									
Total	32	121.63	4.40	64.91	7.45	58.78	6.65	38.00	5.23
Male	14	123.57	5.05	66.93	5.27	56.36	7.03	40.86	3.63
Female	18	120.11	3.20	63.33	8.61	60.67	5.84	35.78	5.28

Table 7.26. (Continued):

1978-1979	Mental Ability N	Mental Ability $\bar{X}$	Mental Ability SD	Reading $\bar{X}$	Reading SD	English $\bar{X}$	English SD	Math $\bar{X}$	Math SD
Grade 11									
Total	134	104.49	13.83	57.19	12.89	51.07	12.60	31.91	10.09
Male	67	103.07	14.42	55.25	14.66	46.58	13.13	30.85	10.93
Female	67	105.91	13.16	59.13	10.59	55.57	10.32	32.97	9.14
1st Quarter									
Total	34	85.82	5.11	43.74	10.26	38.32	9.84	22.06	6.97
Male	21	86.43	4.95	42.57	12.14	36.24	9.73	21.71	6.49
Female	13	84.85	5.43	45.62	6.14	41.69	9.42	22.62	7.91
2nd Quarter									
Total	33	100.36	3.49	53.94	10.05	47.85	11.21	28.27	8.85
Male	18	100.78	3.04	52.39	12.57	43.22	12.59	26.11	9.15
Female	15	99.87	4.02	55.80	5.67	53.40	5.85	30.87	8.02
3rd Quarter									
Total	35	110.86	3.21	62.77	7.64	57.26	7.40	36.71	6.82
Male	14	110.50	3.65	62.21	6.60	54.79	8.69	38.21	5.58
Female	21	111.10	2.95	63.14	8.40	58.90	6.07	35.71	7.50
4th Quarter									
Total	32	121.63	4.40	68.75	6.99	61.19	7.05	40.88	4.89
Male	14	123.57	5.05	71.00	4.82	58.21	6.29	43.29	3.17
Female	18	120.11	3.20	67.00	8.00	63.50	6.88	39.00	5.24

Table 7.26. (Continued):

1979-1980	Mental Ability N	Mental Ability $\bar{X}$	Mental Ability SD	Reading $\bar{X}$	Reading SD	English $\bar{X}$	English SD	Math $\bar{X}$	Math SD
Grade 12									
Total	134	104.49	13.83	58.99	13.76	51.54	12.85	32.21	10.57
Male	67	103.07	14.42	56.40	16.06	47.64	13.73	31.24	10.98
Female	67	105.91	13.16	61.58	10.50	55.43	10.65	33.18	10.14
1st Quarter									
Total	34	85.82	5.11	45.18	9.37	37.53	10.46	21.21	7.87
Male	21	86.43	4.95	43.05	10.43	35.29	10.12	21.52	6.92
Female	13	84.85	5.43	48.62	6.27	41.15	10.34	20.69	9.50
2nd Quarter									
Total	33	100.36	3.49	55.30	14.07	48.64	10.57	29.39	8.92
Male	18	100.78	3.04	52.83	17.82	45.72	11.85	28.78	9.69
Female	15	99.87	4.02	58.27	7.05	52.13	7.82	30.13	8.16
3rd Quarter									
Total	35	110.86	3.21	65.43	7.99	58.00	7.34	36.74	6.31
Male	14	110.50	3.65	66.00	7.62	56.21	9.31	36.00	6.54
Female	21	111.10	2.95	65.05	8.39	59.19	5.62	37.24	6.26
4th Quarter									
Total	32	121.63	4.40	70.44	6.27	62.34	5.10	41.84	5.24
Male	14	123.57	5.05	71.43	4.52	60.07	5.69	44.21	2.42
Female	18	120.11	3.20	69.67	7.38	64.11	3.88	40.00	6.12

Table 7.27. Tests of Significance (Repeated Measures ANOVA) of Differences in Educational Achievement for Longitudinal Cohort 1: Hood River Valley High School

Source	Sex(S)	Quarter(Q)	S X Q	Error	Gain(G)	G X S	G X Q	G X S X Q	Error
Reading									
Degrees of Freedom	1	3	3	126	2	2	6	6	252
Mean Square	79.96	12640.18	223.49	208.55	1447.58	41.96	70.93	20.37	20.27
F	.38	60.61	1.07		71.41	2.07	3.50	1.00	
P	.537	<.001	.364		<.001	.128	.002	.423	
English									
Degrees of Freedom	1	3	3	126	2	2	6	6	252
Mean Square	2789.15	10180.16	107.64	184.83	689.09	20.25	21.03	11.95	17.13
F	15.09	55.08	.58		40.22	1.18	1.23	.70	
P	<.001	<.001	.628		<.001	.308	.292	.652	
Math									
Degrees of Freedom	1	3	3	126	2	2	6	6	252
Mean Square	28.50	7341.52	212.82	109.89	357.67	1.74	18.44	23.75	14.22
F	.26	66.81	1.94		25.15	.12	1.30	1.67	
P	.611	<.001	.127		<.001	.885	.259	.129	

Table 7.28. Mean Mental Ability and Mean Educational Achievement for Longitudinal Cohort 2: Hood River Valley High School

1978-1979	Mental Ability N	Mental Ability $\bar{X}$	Mental Ability SD	Reading $\bar{X}$	Reading SD	English $\bar{X}$	English SD	Math $\bar{X}$	Math SD
Grade 10									
Total	100	106.30	13.95	51.33	12.86	47.34	12.40	29.22	9.43
Male	50	107.02	15.04	50.58	14.79	44.36	14.44	29.54	10.11
Female	50	105.58	12.88	52.08	10.69	50.32	9.17	28.90	8.79
1st Quarter									
Total	25	88.76	8.58	39.68	11.15	37.68	11.88	21.72	8.21
Male	12	87.17	11.03	35.08	12.05	32.58	13.34	22.50	9.74
Female	13	90.23	5.56	43.92	8.66	42.38	8.31	21.00	6.84
2nd Quarter									
Total	25	101.68	2.32	48.04	7.97	44.96	9.98	26.08	8.11
Male	9	101.78	2.77	45.89	7.32	38.44	8.82	24.00	8.22
Female	16	101.63	2.13	49.25	8.28	48.63	8.83	27.25	8.08
3rd Quarter									
Total	25	111.00	3.88	55.84	11.52	51.44	10.26	33.32	7.01
Male	14	109.79	3.77	55.57	12.82	48.21	12.26	31.71	9.38
Female	11	112.55	3.62	56.18	10.23	55.55	4.91	33.09	5.17
4th Quarter									
Total	25	123.76	5.04	61.76	8.63	55.28	10.12	36.76	6.01
Male	15	123.47	5.10	61.13	10.19	53.73	12.48	36.47	6.65
Female	10	124.20	5.18	62.70	5.96	57.60	4.58	37.20	5.20

Table 7.28. (Continued):

1979-1980	Mental Ability N	Mental Ability $\bar{X}$	Mental Ability SD	Reading $\bar{X}$	Reading SD	English $\bar{X}$	English SD	Math $\bar{X}$	Math SD
Grade 11									
Total	100	106.30	13.95	54.90	13.14	49.13	12.01	32.24	9.74
Male	50	107.02	15.04	54.20	15.13	46.12	13.12	32.86	10.94
Female	50	105.58	12.88	55.60	10.90	52.14	10.03	31.62	9.44
1st Quarter									
Total	25	88.76	8.58	44.64	11.68	39.64	11.97	23.64	7.73
Male	12	87.17	11.03	39.50	12.77	33.42	11.02	24.58	8.72
Female	13	90.23	5.56	49.38	8.52	45.38	10.03	22.77	6.93
2nd Quarter									
Total	25	101.68	2.32	49.88	9.18	47.76	9.91	29.08	9.29
Male	9	101.78	2.77	48.67	10.03	43.33	7.66	28.11	10.75
Female	16	101.63	2.13	50.56	8.94	50.25	10.36	29.63	8.69
3rd Quarter									
Total	25	111.00	3.88	59.92	10.30	52.20	10.69	35.92	7.11
Male	14	109.79	3.77	60.50	11.31	48.64	11.95	35.86	8.28
Female	11	112.55	3.62	59.18	9.34	56.73	6.97	36.00	5.67
4th Quarter									
Total	25	123.76	5.04	65.16	10.63	56.92	8.38	40.32	5.04
Male	15	123.47	5.10	63.40	12.70	55.60	9.76	39.53	6.09
Female	10	124.20	5.18	67.80	6.14	58.90	5.63	41.50	2.72

Table 7.28. (Continued):

1980-1981	Mental Ability N	Mental Ability $\bar{X}$	Mental Ability SD	Reading $\bar{X}$	Reading SD	English $\bar{X}$	English SD	Math $\bar{X}$	Math SD
Grade 12									
Total	100	106.30	13.95	58.33	12.73	51.98	12.36	33.01	10.01
Male	50	107.02	15.04	57.10	14.89	47.10	14.03	32.26	10.96
Female	50	105.58	12.88	59.56	10.12	56.86	7.94	33.76	9.00
1st Quarter									
Total	25	88.76	8.58	47.84	13.82	43.56	13.17	25.28	9.77
Male	12	87.17	11.03	41.83	15.21	34.50	11.35	23.75	11.43
Female	13	90.23	5.56	53.38	10.02	51.92	8.42	26.69	8.16
2nd Quarter									
Total	25	101.68	2.32	55.08	8.87	51.20	9.32	29.64	9.71
Male	9	101.78	2.77	53.33	9.85	45.56	9.95	26.89	11.74
Female	16	101.63	2.13	56.06	8.44	54.38	7.50	31.19	8.38
3rd Quarter									
Total	25	111.00	3.88	62.96	9.42	54.40	11.92	35.92	6.32
Male	14	109.79	3.77	62.14	10.14	49.14	12.97	34.93	7.10
Female	11	112.55	3.62	64.00	8.79	61.09	5.84	37.18	5.23
4th Quarter									
Total	25	123.76	5.04	67.44	8.71	58.76	9.96	41.20	5.52
Male	15	123.47	5.10	66.87	10.36	56.20	12.03	39.80	6.58
Female	10	124.20	5.18	68.30	5.81	62.60	3.50	43.30	2.36

Table 7.29. Tests of Significance (Repeated Measures ANOVA) of Differences in Educational Achievement for Longitudinal Cohort 2: Hood River Valley High School

Source	Sex(S)	Quarter(Q)	S X Q	Error	Gain(G)	G X S	G X Q	G X S X Q	Error
Reading									
Degrees of Freedom	1	3	3	92	2	2	6	6	184
Mean Square	1101.91	6472.91	336.52	263.78	1191.52	4.47	16.26	14.18	21.49
F	4.18	24.54	1.28		55.45	.21	.76	.66	
P	.044	<.001	.287		<.001	.812	.605	.682	
English									
Degrees of Freedom	1	3	3	92	2	2	6	6	184
Mean Square	5654.35	4261.89	223.88	249.77	560.05	97.00	15.87	21.71	18.02
F	22.64	17.06	.90		31.08	5.38	.88	1.20	
P	<.001	<.001	.446		<.001	.005	.510	.306	
Math									
Degrees of Freedom	1	3	3	92	2	2	6	6	184
Mean Square	175.16	3740.68	32.06	149.14	396.43	53.49	6.07	6.57	15.91
F	1.17	25.08	.21		24.91	3.36	.38	.41	
P	.281	<.001	.886		<.001	.037	.890	.870	

Table 7.30. Adjusted Means in Educational Achievement for Longitudinal Cohort 1 and Cohort 2: Hood River Valley High School

	N	Reading	English	Math
Cohort 1				
Total	134	56.80	50.41	31.49
Male	67	55.69	47.12	31.26
Female	67	57.91	53.70	31.71
Cohort 2				
Total	100	54.15	48.88	30.95
Male	50	52.77	44.83	30.64
Female	50	55.53	52.92	31.26

Table 7.31. Tests of Significance (ANCOVA) of Differences in Educational Achievement and Comparison of Gains for Longitudinal Cohort 1 and Cohort 2: Hood River Valley High School

Source	Sex(S)	Year(Y)	S X Y	Covariate	Error	Gain(G)	G X S	G X Y	G X S X Y	Error
Reading										
Degrees of Freedom	1	1	1	1	229	2	2	2	2	460
Mean Square	1065.31	1199.27	12.41	60882.88	217.93	2588.66	32.15	38.59	2.83	21.32
F	4.89	5.50	.06	279.37		121.43	1.51	1.81	.13	
P	.028	.020	.812	<.001		<.001	.222	.165	.876	
English										
Degrees of Freedom	1	1	1	1	229	2	2	2	2	460
Mean Square	9239.42	402.79	97.43	45784.60	199.12	1163.14	49.84	94.73	97.83	17.48
F	46.40	2.02	.49	229.93		66.53	2.85	5.42	5.60	
P	<.001	.156	.485	<.001		<.001	.059	.005	.004	
Math										
Degrees of Freedom	1	1	1	1	229	2	2	2	2	460
Mean Square	49.10	48.49	1.25	35832.41	112.81	781.28	29.23	7.57	31.43	14.88
F	.44	.43	.01	317.64		52.49	1.96	.51	2.11	
P	.510	.51	.916	<.001		<.001	.142	.602	.122	

Table 7.32. Mean Mental Ability and Mean Educational Achievement for the 1977-78 Grade 12 Students Who Were Not Part of a Longitudinal Cohort: Hood River Valley High School

	N	Mental Ability		Reading		English		Math	
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	116	102.01	16.97	54.82	15.39	47.64	13.07	29.38	10.61
Male	59	105.53	17.13	55.07	16.50	45.14	13.83	31.08	10.51
Female	57	98.37	16.16	54.56	14.29	50.23	11.79	27.61	10.52
1st Quarter									
Total	29	78.62	9.38	42.17	13.12	35.59	11.90	18.24	7.81
Male	12	79.53	9.16	45.08	11.29	30.33	7.75	19.17	5.70
Female	17	77.94	9.76	40.12	14.23	39.29	13.09	17.59	9.13
2nd Quarter									
Total	29	99.79	2.99	51.93	13.52	47.00	11.85	28.00	8.23
Male	11	99.82	2.96	46.18	18.36	40.36	14.79	28.09	11.55
Female	18	99.78	3.10	55.44	8.27	51.06	7.53	27.94	5.76
3rd Quarter									
Total	29	108.17	2.85	58.62	12.88	51.72	10.08	31.79	8.16
Male	18	108.89	2.89	56.22	14.76	48.50	10.71	32.39	8.13
Female	11	107.00	2.49	62.55	8.18	57.00	6.32	30.82	8.49
4th Quarter									
Total	29	121.45	8.71	66.55	10.94	56.24	8.55	39.48	4.99
Male	18	122.94	10.22	66.00	13.43	54.56	9.76	39.56	5.23
Female	11	119.00	4.92	67.45	5.20	59.00	5.39	39.36	4.82

Table 7.33. Mean Mental Ability and Mean Educational Achievement for the 1978-79 Grade 12 Students Who Were Not Part of a Longitudinal Cohort: Hood River Valley High School

	N	Mental Ability		Reading		English		Math	
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	137	105.77	13.43	59.75	10.69	52.01	10.95	32.99	9.54
Male	60	107.33	11.24	58.80	10.94	48.72	11.38	33.02	9.44
Female	77	104.55	14.88	60.49	10.50	54.57	9.95	32.96	9.68
1st Quarter									
Total	34	89.38	4.47	52.00	8.22	44.35	7.89	25.35	8.22
Male	10	90.40	4.12	51.80	7.77	40.90	8.05	28.50	7.91
Female	24	88.96	4.62	52.08	8.57	45.79	7.52	24.04	8.15
2nd Quarter									
Total	34	100.12	2.58	56.82	8.63	48.71	9.86	30.53	7.23
Male	15	100.53	2.45	54.27	7.91	44.73	10.74	30.67	8.33
Female	19	99.79	2.70	58.84	8.84	51.84	8.06	30.42	6.47
3rd Quarter									
Total	35	110.23	3.11	60.49	10.26	54.00	10.85	35.11	9.38
Male	19	110.32	3.38	57.68	11.91	49.26	11.83	32.89	11.62
Female	16	110.13	2.85	63.81	6.82	59.63	6.08	37.75	4.89
4th Quarter									
Total	34	123.21	7.94	69.68	6.90	60.91	7.49	40.88	5.39
Male	16	120.75	5.18	68.75	6.75	56.69	8.36	38.19	6.19
Female	18	125.39	9.38	70.50	7.11	64.67	3.96	43.28	3.12

Table 7.34. Mean Mental Ability and Mean Educational Achievement for the 1977-78 Grade 11 Students Who Were Not Part of a Longitudinal Cohort: Hood River Valley High School

	N	Mental Ability $\bar{X}$	Mental Ability SD	Reading $\bar{X}$	Reading SD	English $\bar{X}$	English SD	Math $\bar{X}$	Math SD
Total	137	105.77	13.43	56.32	11.54	49.38	11.38	31.53	9.06
Male	60	107.33	11.24	55.58	10.53	46.35	12.00	32.12	8.84
Female	77	104.55	14.88	56.90	12.31	51.74	10.35	31.06	9.25
1st Quarter									
Total	34	89.38	4.47	46.91	10.62	40.62	9.11	23.79	7.51
Male	10	90.40	4.12	46.30	7.35	36.80	11.73	25.30	6.62
Female	24	88.96	4.62	47.17	11.85	42.21	7.51	23.17	7.90
2nd Quarter									
Total	34	100.12	2.58	52.76	8.82	45.97	10.47	28.06	7.32
Male	15	100.53	2.45	49.27	7.18	40.80	10.63	27.67	8.21
Female	19	99.79	2.70	55.53	9.18	50.05	8.55	28.37	6.75
3rd Quarter									
Total	35	110.23	3.11	59.26	8.60	52.80	8.82	34.29	5.71
Male	19	110.32	3.38	57.26	9.36	49.89	9.85	34.21	6.93
Female	16	110.13	2.85	61.63	7.17	56.25	6.06	34.38	4.01
4th Quarter									
Total	34	123.21	7.94	66.26	8.20	58.03	8.97	39.88	6.36
Male	16	120.75	5.18	65.31	6.99	53.31	10.14	38.06	8.16
Female	18	125.39	9.38	67.11	9.26	62.22	5.08	41.50	3.73

Table 7.35. Mean Mental Ability and Mean Educational Achievement for the 1979-80 Grade 10 Students Who Were Not Part of a Longitudinal Cohort: Hood River Valley High School

	N	Mental Ability		Reading		English		Math	
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	149	95.05	14.91	50.99	12.92	45.40	12.76	27.70	9.38
Male	83	93.93	15.93	49.29	13.15	41.57	12.83	26.34	9.69
Female	66	96.47	13.50	53.12	12.38	50.23	10.99	29.42	8.73
1st Quarter									
Total	37	76.11	7.75	39.27	11.90	33.46	9.91	19.54	6.04
Male	24	75.46	8.83	38.83	12.29	29.96	8.62	18.54	5.95
Female	13	77.31	5.33	40.08	11.57	39.92	9.06	21.38	6.01
2nd Quarter									
Total	38	90.53	2.35	49.61	9.73	42.24	10.80	24.37	7.83
Male	21	90.90	2.17	48.14	11.18	38.52	11.77	22.57	8.24
Female	17	90.06	2.54	51.41	7.52	46.82	7.50	26.59	6.89
3rd Quarter									
Total	37	99.65	2.95	53.73	10.04	50.03	9.23	30.22	7.56
Male	20	99.30	3.05	52.30	9.68	47.20	6.89	29.25	6.90
Female	17	100.06	2.86	55.41	10.49	53.35	10.66	31.35	8.33
4th Quarter									
Total	37	114.05	7.48	61.38	9.18	55.97	8.49	36.78	5.77
Male	18	116.11	7.39	61.22	7.78	54.33	8.08	37.89	4.21
Female	19	112.11	7.21	61.53	10.55	57.53	8.79	35.74	6.89

Table 7.36. Mean Mental Ability and Mean Educational Achievement for the 1980-81 Grade 10 Students Who Were Not Part of a Longitudinal Cohort: Hood River Valley High School

	N	Mental Ability		Reading		English		Math	
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	132	94.04	15.50	49.58	14.62	46.15	14.02	26.55	9.70
Male	61	92.70	13.33	46.48	14.18	41.44	14.39	25.25	10.37
Female	71	95.18	17.16	52.25	14.56	50.20	12.42	27.68	8.80
1st Quarter									
Total	33	74.33	7.08	37.76	12.41	33.45	11.67	17.24	7.23
Male	16	76.63	6.04	37.06	10.37	28.44	8.52	15.31	5.65
Female	17	72.18	7.48	38.41	14.37	38.18	12.47	19.06	8.20
2nd Quarter									
Total	33	88.64	2.46	46.91	11.83	44.15	11.67	25.79	8.10
Male	19	88.95	2.44	45.47	12.51	42.84	13.22	27.21	8.75
Female	14	88.21	2.52	48.86	11.00	45.93	9.35	23.86	6.96
3rd Quarter									
Total	33	99.33	3.20	51.88	13.16	50.06	11.14	28.97	7.29
Male	19	99.64	3.73	47.50	14.21	44.71	11.87	26.71	9.12
Female	14	99.11	2.83	55.11	11.67	54.00	8.95	30.63	5.24
4th Quarter									
Total	33	113.85	7.27	61.79	9.86	56.94	10.07	34.21	7.58
Male	12	112.00	4.97	59.42	11.88	52.75	13.25	33.67	10.58
Female	21	114.90	8.23	63.14	8.52	59.33	7.02	34.52	5.48

Table 7.37. Mean Mental Ability and Mean Educational Achievement for the 1980-81 Grade 11 Students Who Were Not Part of a Longitudinal Cohort: Hood River Valley High School

	N	Mental Ability		Reading		English		Math	
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Total	149	95.05	14.91	54.60	13.00	47.66	13.50	29.72	9.86
Male	83	93.93	15.93	53.30	13.67	43.87	13.88	28.83	10.01
Female	66	96.47	13.50	56.23	12.01	52.44	11.41	30.85	9.61
1st Quarter									
Total	37	76.11	7.75	43.03	12.13	34.68	10.78	20.49	6.36
Male	24	75.46	8.83	42.33	12.62	31.21	10.03	19.96	6.67
Female	13	77.31	5.33	44.31	11.54	41.08	9.36	21.46	6.50
2nd Quarter									
Total	38	90.53	2.35	51.32	10.75	44.63	11.71	27.11	8.56
Male	21	90.90	2.17	50.19	12.60	40.05	11.72	26.24	8.41
Female	17	90.06	2.54	52.71	8.05	50.29	9.17	28.18	8.88
3rd Quarter									
Total	37	99.65	2.95	59.49	8.26	53.24	9.30	32.59	7.14
Male	20	99.30	3.05	59.15	8.36	50.70	8.52	32.30	6.31
Female	17	100.06	2.86	59.88	8.37	56.24	9.52	32.94	8.20
4th Quarter									
Total	37	114.05	7.48	64.65	9.14	58.19	8.73	38.78	6.49
Male	18	116.11	7.39	65.06	7.26	57.61	7.15	39.83	5.84
Female	19	112.11	7.21	64.26	10.82	58.74	10.18	37.79	7.07

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